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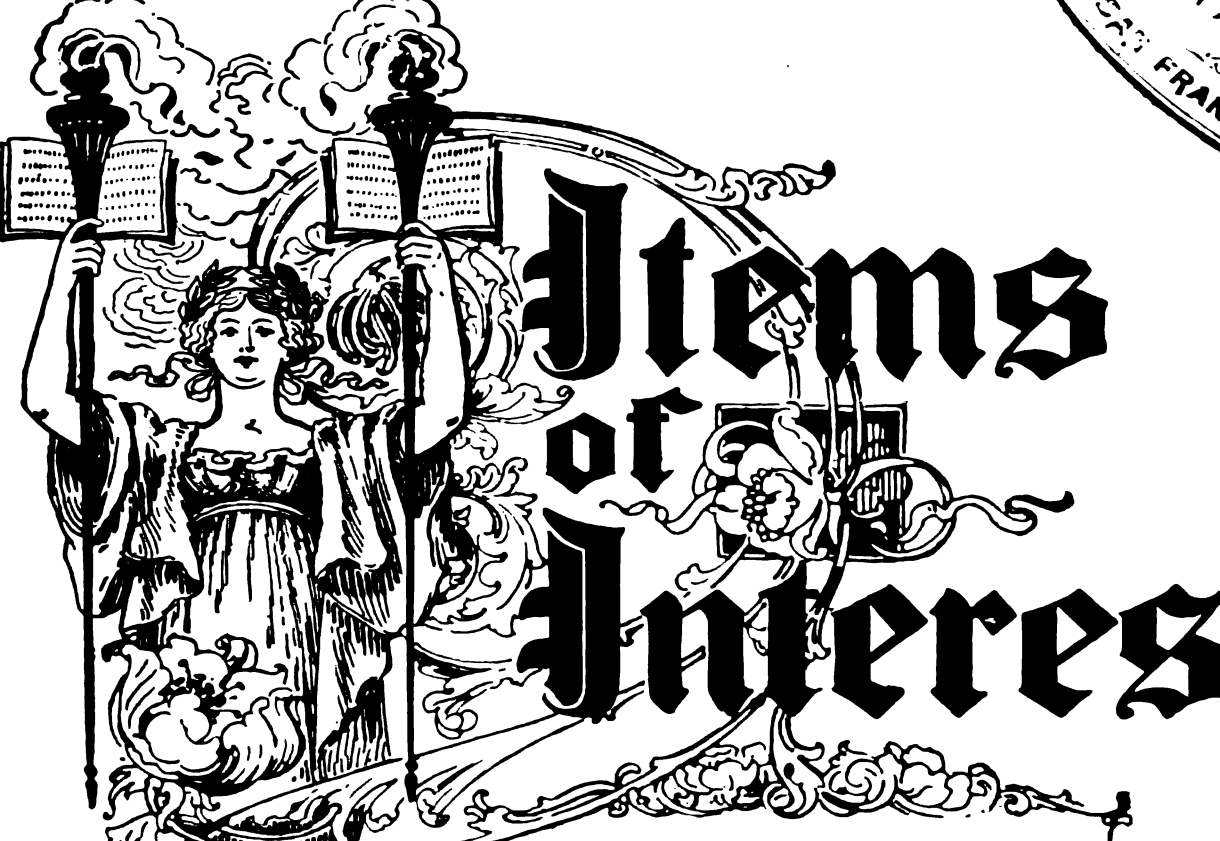
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A MONTHLY  
MAGAZINE OF  
DENTAL ART.  
SCIENCE AND  
LITERATURE



EDITOR -  
R. OTTO LENGU, M.D.S.

VOLUME  
XXIX  
1907

*Items of interest*

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RING  
N. Y.

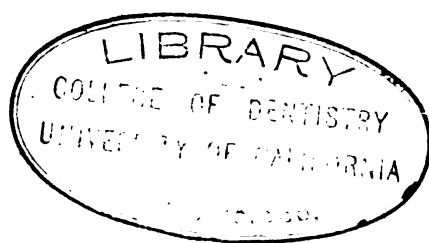




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## ITEMS OF INTEREST

cleansing of each tooth separately, employing pyrozone and formalin. This was seemingly the first advocacy of preventive methods in dental practice. Yet many think that "prophylaxis" is of very recent origin.

The December editorial contains these lines: "It is truly a part of the dental progress of the year that a dental magazine printing nearly one thousand pages, chiefly of original matter, all liberally illustrated, has been furnished at the low price of one dollar per year. The addition of five thousand names to our subscription lists attests the fact that the publishers' generous efforts in behalf of dental literature have met with popular approval."

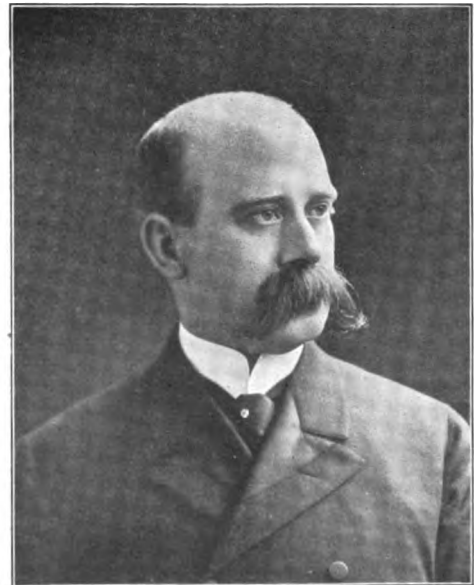
It is a conspicuous fact, noted in glancing through this volume, now ten years old, that in many respects it is fresh and vital to-day. It would repay any young graduate who has come into dentistry within the past two or three years to read *ITEMS OF INTEREST* for the year 1897, from cover to cover.

✱   ✱   ✱

At the very  
**The 1898 Volume.** opening of 1898  
we find that the  
main topic of interest was the relations existing between the National Association of Dental Faculties and the National Association of Dental Examiners. It was about this time that the Examiners' Association began to conceive methods by which they might coerce the colleges. It was from this beginning that more recent abuses of power by state boards can be traced.

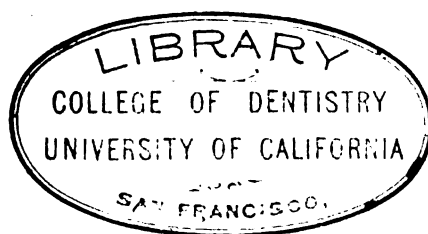


DR. M. R. BRINKMAN

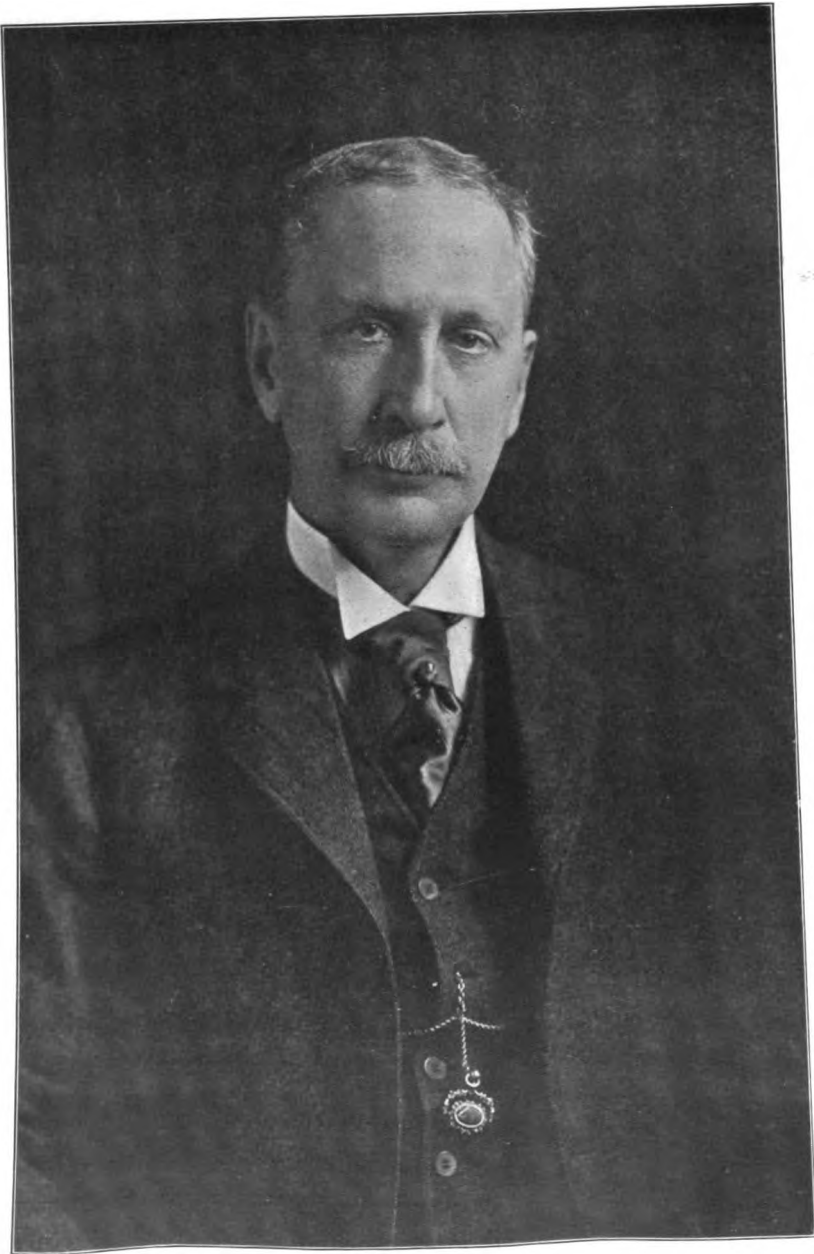


DR. HARVY IREDELL









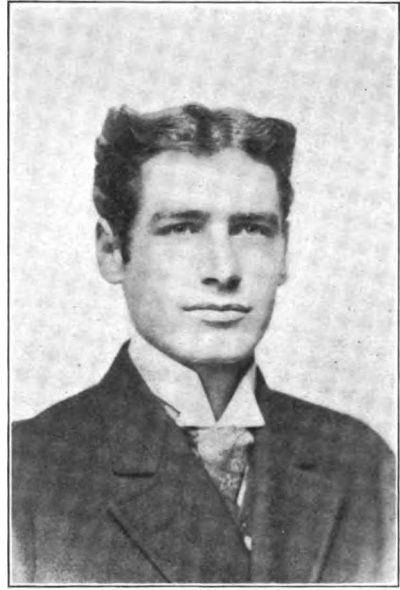
DR. EDW. H. ANGLE



EXCLUSIVE CONTRIBUTIONS



DR. H. A. PULLEN



DR. MARTIN DEWY



DR. FRED. S. MCKAY



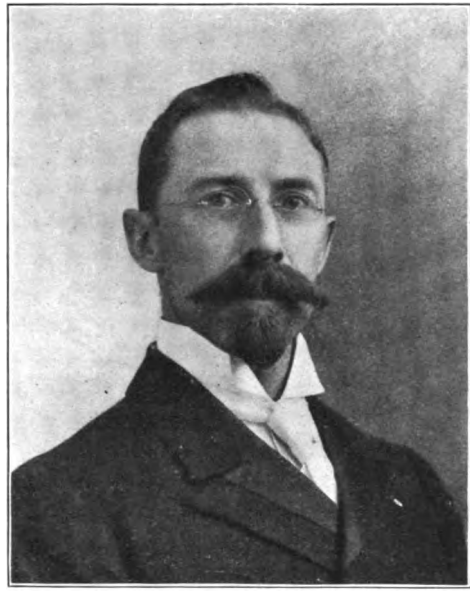
DR. C. A. HAWLEY



## ITEMS OF INTEREST



DR. FRED. J. CAPON



DR. WILL A. CAPON

Prior to the publication of this series of articles we had arranged with Dr. Williams to make special investigation of certain important questions. These papers were his replies to those questions, and the illustrations are particularly beautiful examples of printing, being marvelously fine microphotographs printed in brown tones.

In the same issue there is a fine paper on Cataphoresis by Dr. Weston A. Price, which must have been the result of an immense deal of study and research.

In June, Drs. Burchard and Sudduth discussed one of the problems which had been presented to Dr. Williams, viz.: "What is the blood supply of the dental pulp?" a topic which is still of vital importance, and not yet definitely determined.

In the same issue Dr. M. L. Rhein presents a paper entitled "The Rational Treatment of the Dental Pulp," in the course of which he startled the dental world by advocating the intentional removal of unexposed dental pulps as one means of curing pyorrhea, a method at first violently opposed in high places, but to-day almost universally practiced by all who successfully deal with this disease. There was a close relation between Dr. Rhein's paper and the questions relating to the blood supply of the pulp which had been propounded to Drs. Williams, Burchard, and Sudduth.





DR. E. C. KELLS, JR.



DR. J. J. SARRAZIN

Yet Dr. Rhein's paper, really prepared for *ITEMS OF INTEREST*, was read before the Central Dental Association, an evidence of the co-operation between the magazine and one of "our" societies, which has been previously outlined.

At this time, when our attention is so much engrossed with porcelain inlays and gold inlays, it is worth while to turn to page 529 of the volume for 1898, where may be found described and illustrated a method of filling teeth with "tin inlays" cemented to place. The article is by Dr. Carl Jung, of Heidelberg, and was translated from the German.

In September of this year a short article by Dr. Norman W. Kingsley may be said to have begun what may be termed the porcelain renaissance in this country. At that time porcelain was but rarely used for filling teeth, not a dozen men perhaps being occupied with the work. But Dr. Kingsley had been in Dresden visiting Dr. Jenkins, and on his return wrote this short paper entitled "Gold not the Ideal Filling," in the course of which he described the beautiful work he had seen abroad. This little paper, short though it was, presented such a revolutionary statement and was signed by a name so well known that it attracted our best operators, and their attention was once more given to the study of porcelain. In reality it marked the beginning of the real porcelain era.



## ITEMS OF INTEREST

In the same issue we introduced to our readers for the first time Dr. E. K. Wedelstaedt, who since then has often entertained us with trenchant articles.



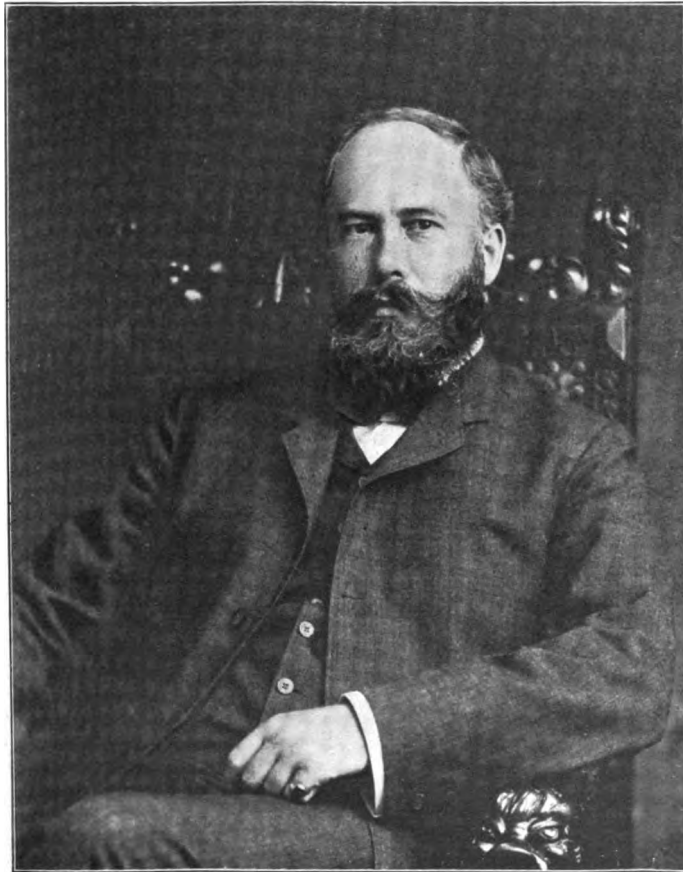
DR. G. S. JUNKERMAN

In the October number there is a curious paper by Dr. Booth Pearsall, of Dublin, Ireland, describing his use of tinfoil as a matrix when inserting oxyphosphate fillings. This is a very practicable idea



which seems still little known in this country. There is also a treatise on "Pulp Mummification," by Dr. J. O. Waas, a paper which excited much comment and controversy.

During this year a portion of the proceedings of the New Jersey State Dental Society was obtained by the representative of the makers of



DR. H. W. GILLETTE

a dentifrice and was used to advertise their preparation. This aroused a storm of protest, resulting in a suit and a test of the right of any one to print or publish the papers or proceedings of a private society. The court decided that society papers are private property. A full account of the controversy with editorial comment thereon appeared in the December number.



## ITEMS OF INTEREST



DR. CHARLES A. MEEKER

the same distinguished author would now hold the same views. Even the pictures shown to prove what good results had been attained by this wholesale removal of sound teeth, in the light of more advanced knowledge, disprove rather than support the writer's contentions. What may have appeared to be a good occlusion in those times would now be instantly recognized as malocclusion. There are no pictures of profiles of patients presented, as is required now of all who expect credence to be placed upon their assertions, but even without the views of the faces it is easy for the expert to detect the deformed physiognomies which must have resulted from the useless removal of the principal teeth in the human mouth. This single paper is indicative of the rapidity with which we are moving. Then, the extraction of four molar teeth was seriously and honestly advocated, in certain conditions, as good practice. To-day, not ten years later, we know that it was bad

The 1899 volume opened with the first of a series of articles by Dr. A. C. Hart, of San Francisco, which were probably the earliest serious papers advocating the prevention of caries by prophylactic measures. At that date Dr. Hart's views were considered fanciful if not chimerical. To-day they would meet with more respectful attention.

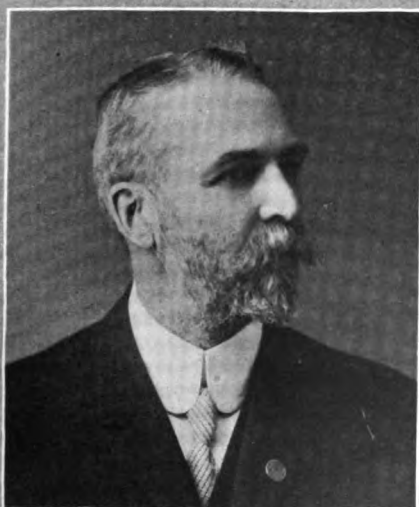
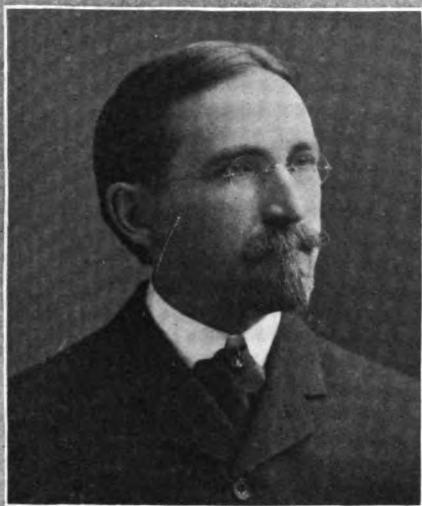
An article by Dr. William Mitchel, advocating the extraction of the sixth-year molars, illustrated with reproductions of photographs of casts, well shows the advance which our art has made. To-day no such paper could find place in our pages, nor do we believe that



DR. H. S. SUTPHEN



EXCLUSIVE CONTRIBUTIONS



DR. W. H. WHITSLAR  
DR. JAS. M. MAGEE

DR. H. L. BANZHAF  
DR. N. S. HOFF



## ITEMS OF INTEREST

practice. In less than another decade it will be called malpractice.

The March editorial entitled "The Gilded Age" was a protest against the parading of gold in the human mouth, and it is curious that



DR. FRANK BLIVEN

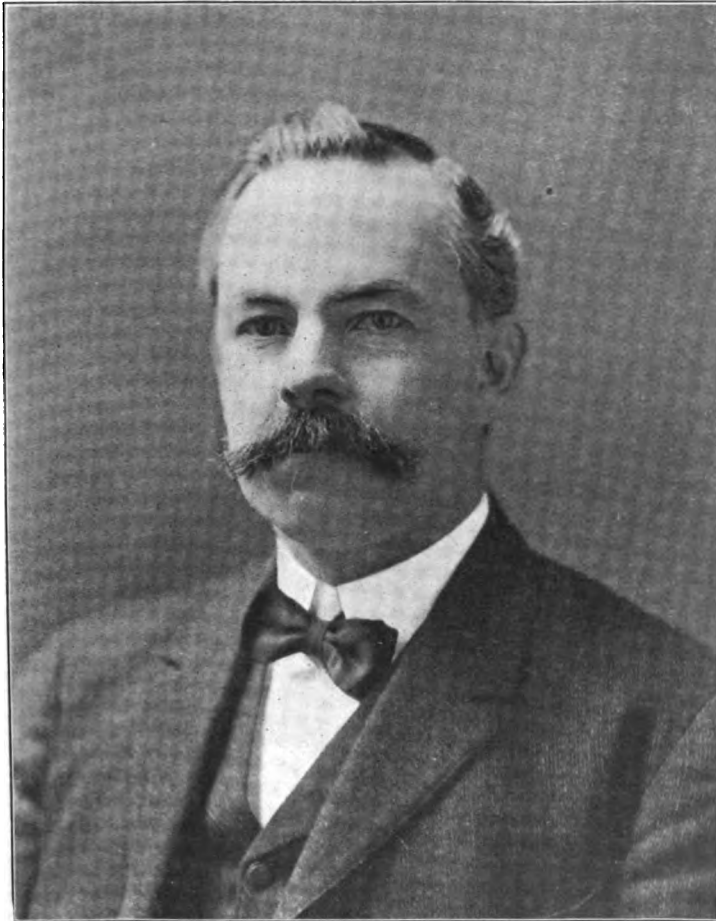
almost immediately thereafter a reaction against gold in conspicuous places began.

In April appeared a magnificent review of Dr. Hart's paper by Dr. I. Norman Broomell, here first introduced to our readers. Dr. Broomell's



views were sound, and would be instructive reading for those interested in preventive dentistry. The paper is accompanied by some of the finest micro-photographs ever published.

The editorial in this month's issue proclaimed the arrival of "The



DR. EMORY A. BRYANT

Porcelain Era," a fitting pronouncement following the previous arraignment of "The Gilded Age." It is hoped that both played a part in forming professional opinion.

The May editorial was an attack upon the common practice at that time for colleges to advertise their infirmaries in terms little better than



## ITEMS OF INTEREST

those chosen by the so-called quacks. This was the beginning of a warfare upon such practices, which was carried on until the Faculties Association at last took action and passed drastic resolutions which seemingly have cured the evil. Here I wish to emphasize the fact that **ITEMS OF INTEREST** is the organ of no single faction in the profession. It attempts to follow the maxim of President Roosevelt, to give every one "a square deal."

In the Editor's Corner for this month occurs, so far as I am able to discover, the first published description of the now common method of



DR. A. W. HARLAN



DR. F. F. DREW

pulp removal by pressure anesthesia. Men were undoubtedly using the method earlier than this, and at least one fakir was selling the secret, but I believe we first gave the "secret" to the profession in our pages.

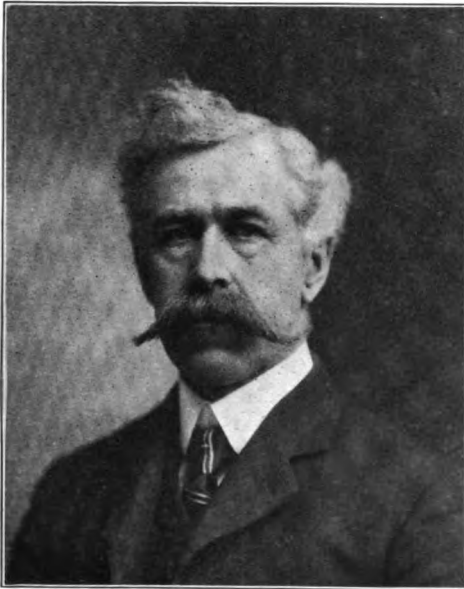
The June number opens with a splendid paper, superbly illustrated. It treats of the Enamel Organ, and is from the pen of Dr. Broomell. The work on this paper must have been stupendous, and that the writer was willing to utilize our pages for publication proves that already our rapidly increasing circulation had become known.

The same issue contained one more of our constantly recurring novelties, an illustrated editorial. It had been argued that pyorrhea can not



originate at the apex of a tooth, there being no pockets. The question is discussed editorially, and illustrated with a reproduction of a tooth encrusted with serumal tartar at the apex of its root, with a clinical history of no pyorrheal pockets.

In July the warfare against college infirmary advertising was warmly waged. There is an imposing symposium including the opinions of college deans and teachers. I note the names of Drs. Kirk, Dunbar, Barrett, MacPherson, Junkerman, Litch, Otto Arnold, G. V. I. Brown, Brophy, and Patterson. The foregoing, together with reproductions of



**DR. R. C. BROPHY**



**DR. L. P. BETHEL**

some college advertisements, undoubtedly contributed to the "interest" in the matter.

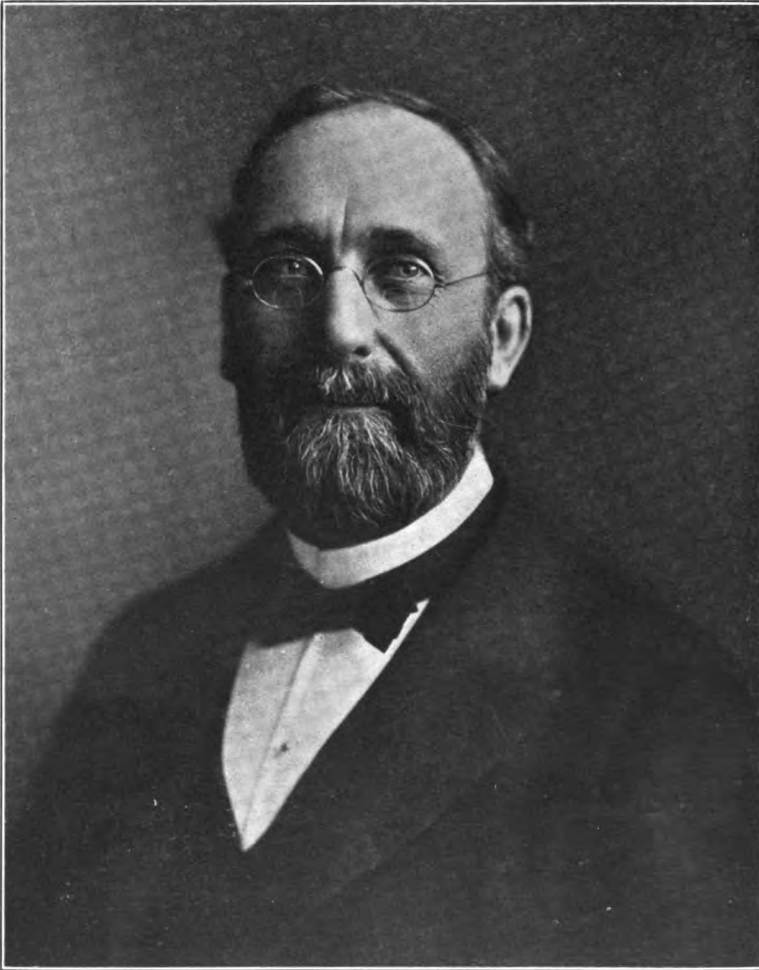
This was truly a "sensational" number, since the very next article began an exposure of the German-American College, which implicated at least one member of the Board of Examiners in the granting of fraudulent diplomas and licenses.

Thus began the extirpation of one of the deadliest cancers that ever endangered our profession. We were frowned upon in high places at home; but in Germany the authorities, to use a slang phrase, "took notice." And the end of this exposure was the final correction of the abuses.



## ITEMS OF INTEREST

I dwell a moment upon this, for various parties have claimed credit for the outcome, but it is undoubted that if we had not had the courage to attack this scandal without gloves the diploma mills of the Middle West would be still grinding. We were threatened with lawsuits and libel



DR. GARRETT NEWKIRK

suits, but in justice to our publishers let me say that I was always authorized to cast these threatening letters into the waste-basket and to continue with the work. Could the most "professional" publication have attempted or have accomplished more than was done by this "trade journal"?



The September number was a "special number," and perhaps may be counted one of the most memorable for many reasons. In this we began the attempt to elevate the mechanical side of dentistry. We presented to the profession for the first time the word "Prosthodontia" as an analogue of "Orthodontia." We made a plea for an increased respect for the men engaged in "mechanical work," as it was then called. To emphasize the fact that gifted and thoroughly professional men might choose to devote the greater part of their time to this branch of our calling, we gave up an entire number to this subject.

The leading articles are by W. G. A. Bonwill and dealt with the scientific articulation of artificial teeth, and the proper application of clasps. Very soon after, Dr. Bonwill died, and it has been the greatest gratification of my editorial career that I had the pleasure of giving this truly great man a fitting publication of his work, which had always either been refused or extended in niggardly fashion. How times have changed! How hard it was for Bonwill to find printers' ink for what he had to say on articulation, and how much printers' ink is now spilled on the subject of occlusion! How little was thought of Bonwill's ideas while he lived, and how very much alive are those same ideas now that he is dead! Poor Bonwill! What an honor to be able to say, "He counted me his friend"! What a pleasure to read over a letter from him written in his last illness in which he tells me that I gave him that public recognition which he had earned and nowhere else had received! Verily that September number was a maker of history. I find also an article by Hart J. Goslee, better known now than then, but his talents had already attracted me, and this article was prepared for this special issue because I particularly wished to associate him, in this "Prosthodontia Number," with Bonwill. But the above were not all; the entire number is filled with splendid practical articles, as valuable to-day as then.

The most remarkable page in the October number is the editorial announcement of the death of Dr. Bonwill. What a coincidence that the first really complete publication of his life's work should be followed in one month by the record of his death! It was really calamitous, for he had in preparation at that time, and we were to have published, other papers of great value. But we lost our Bonwill! Has he been replaced?

As an introduction to the volume for 1900, we began the publication of a series of papers dealing with the question as to whether cements have any deleterious effect upon the tooth pulp. These papers attracted much attention and we think finally disposed of the question in the negative. If anyone still believes that the use of cement can injure a pulp he is respectfully advised to read this symposium before writing any papers to



## ITEMS OF INTEREST

prove that contention. A magnificent paper by Dr. Broomell, begun in the previous number, is continued in the January issue, and is profusely illustrated with his marvelously fine micro-photographs. The author discusses dental embryology.

In May we gave our readers another surprise. In connection with the report of a complimentary banquet tendered to Dr. Norman W. Kingsley, we published not only his portrait and a picture of a sculptured marble bust of The Christ, but likewise reproductions of a dozen copies of Rembrandt pictures which Dr. Kingsley had done in burnt wood. These reproductions were unique because they were done in two colors, the frames showing black, while the pictures are in brown.

Now, when gold inlays are used in daily practice, a paper dealing with the subject is no uncommon occurrence, but seven years ago few indeed understood the technique of the work. It is interesting therefore to find a well-illustrated article describing "Gold Fillings Made Out of the Mouth," by Dr. R. M. Chase, of Bethel, Vermont. Dr. Chase's method even at that early day seems to be quite on a par with modes of work now. He took his impressions with a special impression compound, made his dies of a low fusing metal and then filled a matrix made therefrom with gold foil, just as fillings are made in the mouth. The result, of course, was a pure gold filling, not one made of solder. At a recent meeting where the subject of gold inlays was up for discussion, a similar method was described and praised as being an "advance" over the solder filled inlays. Yet here we see that *ITEMS OF INTEREST* gave the profession Dr. Chase's idea seven years ago.

As one more evidence of our desire to surprise our readers occasionally by innovations in the way of journalism, we offered, in August, a novel report of the meeting of the National Dental Association, at Old Point Comfort, illustrated with portraits of a number of those in attendance, who had been willing to "sit" before my camera. These pictures now appear to me to be full of faults from a photographic standpoint. Yet the subjects were good enough to say they were "likenesses." At all events I know that I was very proud of them at that time, and I also recall the diligence with which I worked developing those plates on the night of my return home, and printing the pictures on the day after, that they might be engraved and published in the very next number, then ready for the presses with the exception of this particular article. The pictures include Drs. Taft, Holly Smith, Black, Burkhart, Brophy, Darby, Crouse, Meeker, Rhein, C. N. Johnson, Hart Goslee, and G. V. I. Brown, the last perhaps the most successful of all as a portrait. As a "tail-piece" there was a little picture of a gentleman in the act of diving, while a distinguished-



looking man, in a bathing suit, stands on the float gazing seaward. I think it time to inform our readers that this was Dr. Tracy, "Our Tracy," as we call him now.

Again we indulged in a special number devoted mainly to a single subject, this time orthodontia, which appeared in September. In this we find for the first time in our pages the name of Dr. H. A. Pullen, a name which forevermore will be associated with the literature of orthodontia.

In January, 1901, we inaugurated a discussion  
**The 1901 Volume.** as to whether or not a vacuum chamber is required in retaining full upper dentures. We published a symposium on the subject, offering our readers no less than sixteen papers, in the main from teachers in the colleges, and this series is followed by additional papers on the same subject in February and March. Prior to that time there were men who declared that they never used "air chambers," while others, with equal positiveness, argued that a "vacuum chamber" is essential. We believe that this series of papers, prepared at our specific request, finally placed the subject on a rational basis, and established the scientific retention of dentures by "relief spaces."

In February we published a radical article by Dr. M. L. Rhein, advocating the amputation of diseased roots of molars and their replacement by porcelain substitutes, as a means of treating teeth loosened by pyorrhea. The operation is amply illustrated, and though it was at first counted a curiosity, time has proven the importance of the procedure, many teeth having thus been saved which must otherwise have been sacrificed.

In the same number, Dr. Alphonso Irwin presents a paper in which he gives statistics in regard to public dental service in Europe. This initiated a similar movement in this country, and, while it has not spread as widely as it should, Dr. Irwin deserves the credit of making the first important appeal for dental services in public institutions.

In March there is once more an evidence of the co-operation of journal and society. Dr. Jas. G. Palmer read a paper entitled "Is the Dental Pulp Necessary in Adult Life?" which was intended as a means of opening further discussion of Dr. Rhein's previously mentioned advocacy of intentional pulp removal in cases of pyorrhea. I was asked to plan the debate for the evening, and succeeded in obtaining papers on the subject from Drs. Rhein, Leon Williams, I. N. Broomell, John I. Hart, Charles L. Hungerford, R. R. Andrews, E. A. Bogue, and others, while the actual discussion, as may be imagined, was most instructive.

In June we published another symposium, primarily planned by us, but read before the Second District Society, at what has since become an historical meeting, since for a time it seemed almost as though the East



## ITEMS OF INTEREST

and West were pitted against one another on the question of "Extension for Prevention." The papers of the evening cover no less than fifty printed pages, and were from the pens of C. N. Johnson, E. T. Darby, E. K. Wedelstaedt, B. Holly Smith, G. V. Black, Wm. H. Trueman, M. L. Rhein, S. G. Perry, and myself. Lengthy as this was, the topic was by no means exhausted, and the arguments were continued for months, before many societies, till at this time all misunderstandings seem to have passed and a practically uniform method of cavity preparation prevails both East and West.

In July we began the series of papers by Hart J. Goslee, on Crown and Bridge Work, which have proven so satisfactory to all concerned. There is also a paper by Dr. Weston A. Price, with reproductions of the finest skiagraphs we have ever seen in a dental publication. Those on page 460 are really marvelous and reflect great credit upon Dr. Price.

In reviewing the magazine up to this point, it has been interesting to note that the department of Orthodontia, inaugurated in the first number for 1897, has rarely been absent, but in October of this year we began publishing for the new and then unknown American Society of Orthodontists, and I think it not immodest to declare that we have published for this society so faithfully, with such liberal use of illustrations, that we have not a little contributed to its world-wide fame, while at the same time materially aiding in spreading the gospel of the real science of orthodontia. The papers read before this society have been of the highest type, and the work of the members entitles them to all the fame they have attained, but it is at the same time true that the demands of the modern orthodontist for illustrations exceed those of any other writers in the dental world, and none but a generous publisher would have printed the transactions of this society as they have appeared in our pages. In passing, it is worthy of note that as high as twenty-five dollars has been offered for a complete set of the transactions of the American Society of Orthodontists, yet all of this material went to our subscribers at a nominal cost, in addition to all that we simultaneously published in other branches.

The articles by Dr. Goslee are continued throughout the volume for 1902, and it is only when looking backward, as it were, that one can fully appreciate how thoroughly well the author has done his work, for the methods are as valuable now as then, since they are all standard modes of practice.

I note in turning the pages of this volume the first appearance of papers by Dr. Stewart Spence, describing his experiments with vulcanite and plaster. There is no doubt that these were valuable contributions to



our literature. In the July number there is an important paper by Dr. E. C. Kirk, being a "Clinical Study of a Case of Erosion," which was finely illustrated with reproductions of photographs of crystals found in the saliva.

Once more, in September, we surprised our readers with an unusual innovation. At that time the use of porcelain for inlay work was rapidly coming into vogue, and there was a well-defined demand for information as to the technique. A small book on the subject had just appeared in Germany, from the pen of Dr. W. W. Bruck. The permission of the author was obtained, and a translation covering sixty odd pages with 116 illustrations was given to our readers in a single issue.

In December there was an unusually important paper dealing with the Chemistry of Cements, by Herman Fleck, Ph.D., which had been read before the Colorado State Dental Society. This paper should not be overlooked by any students of the actions or uses of cements in dental practice.

By this time a crisis in dental journalism had been reached. The new **ITEMS OF INTEREST** was six years old, and during all those years had been trying to give as much for one dollar per year as was offered elsewhere for two or two and a half dollars. I recall to your mind my temporary fear lest I had been rash in making special features of articles prepared expressly for our pages. That this fear had been groundless, and that **ITEMS OF INTEREST** was meeting the approval of the best men in the profession, is attested by the fact that in six years we published no less than 1580 pages of absolutely original material, out of the total of over 4000 pages printed in all. At last the magazine began to make itself felt in other directions, for at the beginning of this year every journal except the *International* was offered at one dollar per annum. Feeling that we could no longer offer our book for less than our contemporaries, there was no course left except to be prepared to give even more than ever before to our subscribers. To this end, for our 1903 volume we prepared a new and handsomer dress. All the departmental headings were redrawn and greatly improved. Engraved headings were made for the tops of the pages, and we inaugurated a valuable idea never used before in any publication of any kind. All students who have had occasion to compile articles taking data from bound volumes of monthly magazines must have felt the annoyance of always turning to the index to discover in what month a given article had been published. Beginning with 1903, we have saved this trouble, and wherever a volume of **ITEMS OF INTEREST** is opened the exact month is given on the lower corner of the right-hand page.



## ITEMS OF INTEREST

Beginning with this volume it is very apparent that prosthodontia as well as orthodontia had come to be counted as specialties. Both departments are kept constantly before our readers and are always offering valuable practical articles. I note the continuance of the Goslee articles, and the papers of the American Society of Orthodontists. Both departments also contain many papers apart from these.

Late in February of this year occurred the great Odontographic Society meeting in Chicago; a meeting managed by a local society, which nevertheless attracted twenty-six hundred dentists, an attendance larger than that at any International Congress. I had the honor of being present, and an hour before leaving I saw a photograph on sale. It was a large flash-light picture of this great gathering of dentists. Believing that our readers would be glad of a glimpse of this meeting, and that it would likewise be a worthy record of the event for future historians to comment upon, I purchased the picture. Arrived in New York there was just time to have the picture reproduced, and it appeared in our next number, much I think to the surprise of the Chicago men.

In April I find an instructive article on "Jacket Crowns," and "Cup Crowns," written by Dr. Fred J. Capon, of Toronto. The all-porcelain jacket which has come into vogue more recently has its advantages, of course, but both Drs. Fred and Wm. Capon still prefer the style described in this paper, which is fully illustrated.

An article by Dr. M. H. Cryer, in our May issue, is probably better illustrated than any paper by the same author which has appeared elsewhere. There are thirty splendid cuts, of which nearly half are full-page engravings. The paper deals with the Anatomy of the Alveolar Process, and is in this writer's usual masterly style.

An editorial in the June number first proposed what has since become famous as the Asheville Resolution, in relation to interchange of license. We have always been seeking a means of accomplishing this much desired comity, and the suggestion contained in this editorial has proven nearer to an accomplishment than any other.

In October we published reproductions of two group photographs which had been taken at the Asheville meeting—one of the Faculties Association and the other showing the Examiners Association. In November there was a group photograph taken by myself, in which are seen the officers of the new organization, the Interstate Dental Fraternity, which at Asheville held its first annual dinner.

In the January number for 1904 I find a short but instructive article by Dr. J. E. Taft, of New Haven, Conn., in which he describes a method of repairing broken crowns without removing the pin. He makes a tube of

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platinum which he fits over the projecting pin, and to this affixes a facing, finishing up with porcelain as a backing, and then setting with cement.

The next article shows that the making of gold inlays was attracting an increased interest. Dr. T. C. Trigger, of Ontario, describes a hollow gold inlay not very different from methods now in vogue. Both articles are adequately illustrated.

In February we began publishing the proceedings of the Pedagogic Society. Ordinarily we would not care to give space to articles of this type, but so many in our profession are prone to criticize college methods and college teaching, that it seemed timely that our readers should learn that dental teaching has grown into a science. The papers were a splendid series, and much good was accomplished by their publication in **ITEMS OF INTEREST**.

I have elsewhere commented on the excellence of Dr. Weston A. Price's skiagraphs. Noting that few others were obtaining so good pictures as he, Dr. Price was persuaded to prepare for us a detailed account of his technique. The paper appeared in March of this year, and includes even his photographic formulæ for developing the films. The illustrations include another splendid set of skiagraphs.

The papers of the Pedagogic Society, the transactions of the American Society of Orthodontists, and the Goslee series are the chief features of this volume, but in June we gave our readers Dr. Edward B. Spaulding's remarkable paper describing for the first time his all-porcelain jacket crown. The paper is so well presented and illustrated that any expert porcelain worker needs no further teaching in order to produce this most beautiful of all artificial crowns.

In November we published a special number in which we gave our readers an account of the Fourth International Dental Congress, the issue including over one hundred and thirty pages, in addition to six beautifully engraved portraits of distinguished foreign visitors. Extracts of many of the chief papers and most interesting discussions were presented, and, while of course in no way pretending to be as complete as the official report of the Congress, it had the advantage of being a comprehensive story, published very quickly after the close of the Congress.

In 1905 we inaugurated another department, entitled **Dental Laws and Licenses**. In this department, which first appeared in February, we opened a forum for the debate of dental legislation, dental licenses, interchange, and kindred topics, and numerous important articles have already appeared therein. In addition we prepared a brief synopsis of the laws of all the States, and this we have published at brief intervals since that time, always keeping the information up to the latest enactments.



## ITEMS OF INTEREST

In the June number there was a magnificent paper by Dr. R. H. Hofheinz, one of our best writers, dealing with the comparative value of gold and porcelain as filling materials. The paper is illustrated with twenty-seven woodcuts.

In July Dr. Calvin S. Case contributed a paper, twenty-seven pages in length, giving a résumé of his views on "Dento-facial Relations," a paper which has caused a great deal of discussion.

By this time one might almost say that the question of the hour was, "To extract or not to extract?" Many orthodontists were arguing that extraction is almost a crime, and even a new word was coined for those who ruthlessly remove sound teeth from so-called crowded arches, and we heard much of "odontocides." On the other hand men long counted as experts in this branch of work still argued that often, either for reasons of expediency or for actual benefit to the physiognomy, extraction was permissible and even advisable. In this condition of affairs, by co-operating with the Second District Dental Society, another memorable meeting was arranged at which men on both sides of the question were asked to discuss their views and present their arguments. As a result an entire number of *ITEMS OF INTEREST* was required to publish the report, which was illustrated by no less than one hundred and two half-tone engravings, some of which were full-page groups of models. The result of this meeting, and the published reports thereof, has been incalculable. Many men present, after seeing the illustrations on the screen, decided on the moment never to attempt the regulation of teeth again, but to refer patients in future to specialists. Indeed, there is little doubt that this one meeting did much to establish orthodontia as a separate specialty.

In this review of the last ten years of *ITEMS OF INTEREST* it has seemed less and less needful to dwell upon what we have accomplished as we approached the present day. Nor is it possible in an article of this kind to really give a detailed account of all that has required ten years to publish. I have merely skimmed the surface, touching upon conspicuous points. The 1906 volume is so fresh in the reader's mind that I need do no more than just mention the salient features.

It was, of course, very proper that the resources of the magazine should have been used to collect aid for the stricken dentists of California, and we were proud of the result, one-third of all the moneys contributed throughout the United States having passed through this channel. Over \$5,000 was our total.

With the beginning of this volume we gave our subscribers two new departments. That entitled "Clinical Demonstrations" has been deserv-



edly popular, and it is no small evidence of its value to add that absolutely every article printed in this department has been clipped and republished by other magazines, not a few having appeared a number of times. The "Pessimist" papers were a novelty, of which no more need be said.

In conclusion a short story will give an insight into our journalistic methods and show the great power of printers' ink. Early in 1905 I had occasion to visit Chicago, and I became impressed with the fact that the principle of filling teeth with inlays was rapidly gaining prestige among the better class of practitioners, and that the gold inlay was rapidly approaching something very close to perfection. Returning to the Metropolis I carefully investigated the situation and found that to the men in the East a gold inlay was practically an unknown factor, probably not more than one filling in a thousand being inserted according to this method. Sitting around the supper table one night with a number of professional friends, I offered a little wager that I could then announce the next "hobby in dentistry," and I named gold inlays. Subsequently I induced various local societies to invite Drs. Hinman, Wassall, and Nyman to present papers on this subject during the next autumn. At the same time I secured a complete set of programs of the State society meetings, and from the clinic lists selected the names of men throughout the country who were giving clinics on gold inlays in any class. Communications were sent to all of these men, and thus we were prepared to publish, during 1906, a continuous series of articles dealing with the subject of inlaying teeth with gold. In addition Dr. Thomas P. Hinman, of Atlanta, was secured to write a special series covering the entire subject of gold inlays, and the result is that we were enabled to make the prophesy come true, and the gold inlay principle has received such an impetus that there is little doubt that in the near future the very best method of application will have been perfected.

**Our Portraits.** A word must be said in regard to the presentation of the numerous portraits in this issue. Let no one imagine that the space allotted to any one portrait is any index of preference or importance. To all who have so generously aided me in the making of *ITEMS OF INTEREST*, I feel equally indebted. The reproductions, therefore, are large or small, dependent upon the prints I was able to procure; the quality of the same; the time of their receipt; the scheme of page decoration to avoid monotony, and a number of other considerations that need not be mentioned. The final plan adopted presents all of the faces, with very few exceptions, as nearly as possible the same size. Thus we feel that our friends are presented to our subscribers as nearly on an equality as could be managed. To each and everyone, in conclusion, may I extend my heartfelt thanks, and best wishes for the coming year.





## Methods of Filling Teeth with Gold Inlays.\*

By DR. THOMAS P. HINMAN, Atlanta, Ga.

### **Extensive Cavities in Molars.**

In extensive cavities in molars involving mesial, distal, and morsal surfaces where the pulp is dead, the teeth are usually condemned for crowning. It is pre-supposed that the canals and pulp chamber have been filled and that most of the morsal surface has been lost.

Grind away enough of the morsal enamel to put it out of occlusion about 1-16 of an inch. Fill the pulp chamber with cement, restoring a portion of the lost dentine with the same material. Cut the mesial and distal gingival walls flat with a square end fissure bur. Flare the mesio-buccal and lingual and the disto-buccal and lingual walls well to the angles. These finished walls should converge slightly toward the gingival border. This allows the cavity to have a slight cope or draw, so that the matrix is easily dislodged after burnishing. Unite the two cavities across the morsal surface with a broad groove. Leave the enamel on the morsal surface flat, slightly beveling it from without, inward, with a cuttle-fish disk in the engine. Round all sharp corners that are liable to tear the matrix, being careful not to dub them off so as to destroy the shape of the cavity. Be sure to carry the gingival walls slightly below the gum margin. If the gum laps these margins so as to make it difficult to force the matrix to lap them, it should be pressed back with cotton wedged between the teeth and allowed to remain several days. It is essential in making good matrices to have all margins accessible. The reason for cutting off the morsal surface is, that it may be replaced with a heavy layer of gold, thus preventing a fracture of either the lingual or buccal plates of enamel during mastication.

The buccal and lingual morsal enamel is beveled from without inward, because it will allow the gold to slightly lap these walls and produce a more perfect joint in the finished inlay. (Fig. 67.)

### **Making the Matrix.**

Cut a piece of inlay gold wide enough to lap well the lingual and buccal enamel and long enough to cover the mesio-gingival and disto-gingival borders. Anneal thoroughly and bend in the shape of the letter "U." Place it in the cavity, the free ends lapping the mesio-gingival and the disto-gingival walls. Force a large pledget of wet cotton in the distal side between the matrix and adjoining tooth. Mallet on this piece of wet cotton with an orange-wood plugger in the automatic mallet. Leave this

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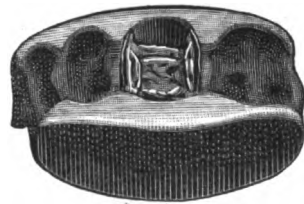
cotton in position and force another pledget of wet cotton in the mesial side between the matrix and adjoining tooth. If the matrix tries to buckle in the center it is probably too long, and it should be removed from the mouth, shortened and re-annealed before replacing in position. Remove the cotton on one side of the cavity and mallet right against the gold with the orange-wood plugger, driving the gold in close proximity to the margins on the approximal surfaces, as well as the morsal surfaces. Burnish the buccal, lingual and gingival walls with a flat burnisher, thus causing the gold to lap well these margins.



**FIG. 67.**



**FIG. 68.**



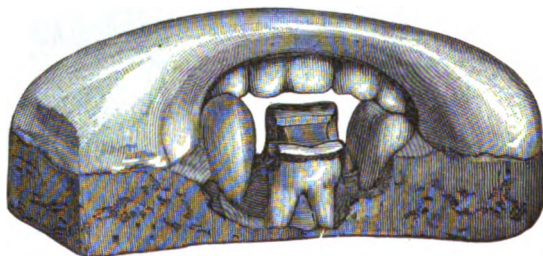
**FIG. 69.**

I have found No. 3 of LeCron's inlay burnishers to be well suited for burnishing the gold to the flat floor of the cavity as well as to the bucco-gingival, linguo-gingival angles. Burnish the gold well to the margins and floor of the cavity. Replace the cotton in the side thus treated and remove the cotton from the other side and proceed to adapt the matrix in like manner. Remove the matrix from the cavity and trim it approximately, leaving a lap about 1-32 of an inch to all the margins. Re-anneal the matrix and return to the cavity; reburnish the margin and if any tears occur in the bottom of the matrix, mend them with gold pellets. Remove the matrix from the mouth and thicken with 22k. solder. (Fig. 68.) Return to the mouth and reburnish the margins. Dry the matrix and with modeling compound dry heated, take an impression and bite, pressing the modeling compound to the buccal surfaces of the teeth with the fingers, instructing the patient to press the soft compound against the lingual surfaces of the teeth with the tongue. Chill the compound thoroughly and remove from the mouth. The matrix should come away with the compound. (Fig. 69.) Run the half of the impression containing the matrix in sump and set in a small crown articulator, or use self-made articulator as shown in illustration, running the bite half in plaster. (Fig. 70.) The bite half is run in plaster, because it is harder than sump and, therefore, more suitable for this purpose. Warm the modeling



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compound in water, being sure that it gets thoroughly soft, but not soft enough to be sticky, and remove from the model and bite. Restore the lost parts of the tooth (except the cusp) in hard wax. Swage a cusp of 36G pure gold, placing it in position on the model and arranging it so as to produce a good occlusion. Remove the cusp and fill it with 22k. solder, replace it on the model and wax to position. The cusp piece should be long enough mesio-distally to lead the solder to a correct contour, thus producing the knuckle. Cut the tooth from the model; cover the distal surface of the wax with 1-1000 contour gold. This contour gold should be burnished as smooth as possible. Punch a small hole in the contour



*FIG. 70.*

gold on the distal surface about the center of the wax; make a small roll of wax about 1-16 of an inch in diameter and 1-2 an inch long, and attach one end to the contour gold, allowing this roll of wax to cover the hole previously made. The roll of wax extends straight out distally. (Fig. 71.) Thoroughly wet the model and invest with the distal surface downward; when hard, trim the investments as small as possible to retain strength, cutting it away on the under side until the roll of wax is reached. Wash out the wax thoroughly. The hole (Fig. 72) left through the investment by the small roll of wax attached to the distal surface of the inlay allows the air to vent through and prevents bubbles in the solder. Flux the matrix, contour gold and cusp with creamed borax, fill the matrix heaping full of large and small pieces of 20k. solder. This solder should be thoroughly covered with creamed borax before it is put in the matrix. Heat up from below, using a Bunsen burner for this purpose.

When the solder is nearly ready to melt, apply the broad brush flame of the blow-pipe to the under side of the investment and draw the solder down. Apply more solder to the mesial surface, melting it this time from above until sufficient gold has been used. After the solder has thoroughly congealed, plunge the investment in cold water to facilitate its removal



from the inlay. Polish the approximal surfaces and fit into position in the mouth, removing surplus gold where the inlay is too full or adding a little solder by sweating where material is lacking.

Trim the mesial, distal and gingival margins very thin, so that when the inlay is set a strip will easily remove the surplus. Roughen the inside



FIG. 71.



FIG. 72.

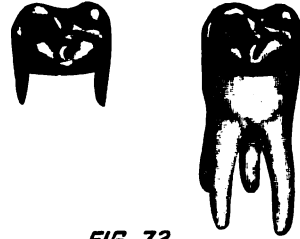
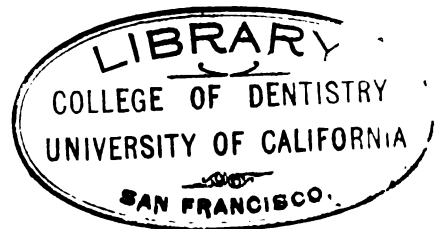


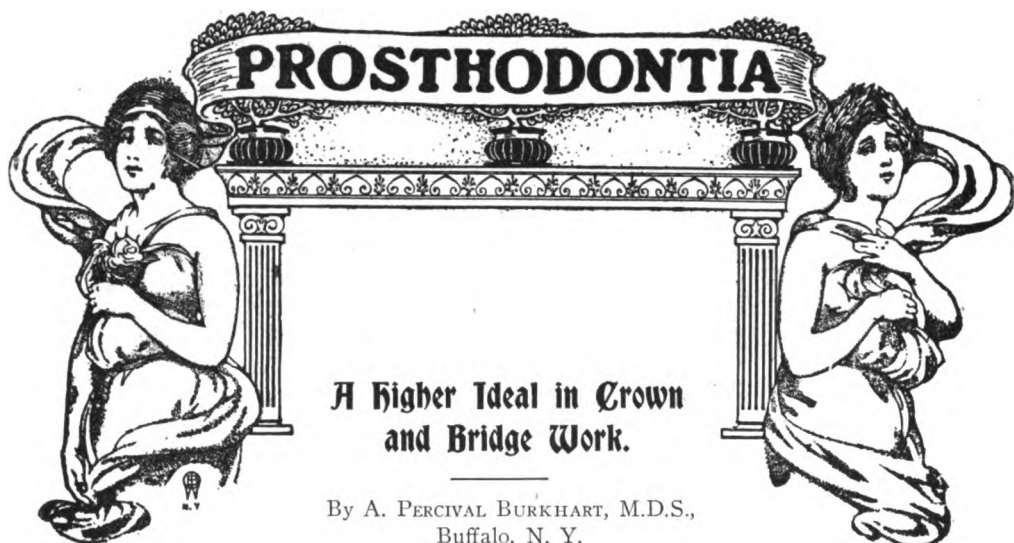
FIG. 73.

of the inlay with a small bur. Protect the cavity from moisture and dry thoroughly, wiping out with alcohol. Mix cement to proper consistency and smear well over the cavity, putting some on the inside of the inlay and drive to place in the mouth. Before the cement is set, burnish the marginal lap with a flat burnisher on the mesial and distal surfaces and with a large round burnisher on the buccal and lingual margins. When the cement is thoroughly set, polish the margins and inlay. Results obtained by this method more than justify the expenditure of time and are superior in every respect to a crown.

The buccal and lingual walls are thoroughly protected from fracture by the thickness of the inlay. (Fig. 73.)







*Read before the New Jersey State Dental Society, Asbury Park, N. J., July, 1906.*

At the leading dental meetings which I have attended for several years past, there has been a marked absence of discussion of crown and bridge work. I regret exceedingly that so important a branch in dentistry has been overshadowed by porcelain and gold inlay work.

Inlay work has its merits and I shall not condemn it, because I believe in it, and may add, when used with judgment is truly one of the jewels in dentistry. Crown and bridge work, however, has been tested for a sufficient length of time to judge whether it is worthy the attention of the dental profession. But one answer can be given and that in the affirmative. Dr. George Evans, in his latest work says: "Modern artificial crown and bridge work belongs to the department of dentistry formerly termed 'mechanical,' but the judgment, skill, and scientific information required, places it far above ordinary mechanical dentistry, which has sunk to a low estate since the introduction of vulcanite."

To digress a moment, let me say: My remarks to-day are entirely directed to that particular branch of crown and bridge work known as fixed or stationary bridge work, although in my daily practice I do not confine myself to this particular style altogether. Conditions must, of necessity, determine each case. Removable crown and bridge is a valuable adjunct, and oftentimes is the only artistic and useful work to construct. In a spirit of enthusiasm, I venture to say that crown and bridge work, when honestly recommended, and properly and artistically constructed, is a credit to the skilful practitioner; a blessing and comfort



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to patients. The interests of the patient should be the guiding principle in all our operations, and, after careful examination, plainly and distinctly indicate to him the best system suited to his case. To arrive at an opinion, the mechanical portion of the operation is not the only element to be considered. Pathology and therapeutics must not be overlooked if we mean to treat our patients as we would like to be treated, were we undergoing a similar operation. To arrive at a safe conclusion in nearly every instance in selecting a system—the same care should be exercised such as the skilled orthodontist pursues, namely, the obtaining of an accurate model of each jaw, and occluding them for careful study. Plaster models afford an opportunity for studying restoration of features and tooth structure, and correct occlusion of the intended artificial, with the natural organs.

### **The Ethical Aspect of Crown and Bridge Work.**

Crown and bridge work has its dark sides, because, too frequently, by unscrupulous and avaricious men, it is employed when other means to a certainty are indicated. This branch has been, and is daily being abused, more than any other in dentistry, and I therefore believe it the duty of every honest and skilful practitioner, by word and act, to aid in elevating it to a higher plane.

You may ask, "how is this branch so grossly abused?" My answer is, faulty and carelessly constructed work which fails to bear the stamp too frequently of honesty, and is inserted in the mouths of patients and by them accepted, being unable to note the faulty construction, broken and checked porcelain pin facings or to detect ill-fitting caps and shell crowns.

A dentist who will insert a single crown or bridge upon an inaccurately prepared abutment, or abutments, and depend almost wholly upon the cement to keep the crown or bridge in position, is not honest with himself, and certainly has not treated his patient as he would like to be treated were he undergoing a similar operation.

Honesty toward patients, conscientiously prepared abutments, accurately fitted caps to abutments, the very best materials, artistically constructed work, and humane treatment, are some of the requisites which should govern every dentist.

Gentlemen, let us, therefore, as ethical men, inject into our daily work the highest ideal of manhood and skill, and with each succeeding day, add to our experience, ever seeking to attain to a high degree of accomplishment in this particular branch.

Too frequently we hear youthful dentists say: "Oh, I'm an expert crown and bridge worker." With due respect to youth and ambition, in all kindness let me say: It takes more than a month, or a year, to become



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an expert; it takes years. To insure the highest degree of success, to mechanical skill must be added daily experience, pathological consideration, and therapeutics, and the combination of these factors lead to success in crown and bridge work. This remark is based on observations of my own work, covering a period of over twenty years, and that of many of my esteemed professional brethren. With this in mind, I appeal to the young men in the dental profession, to give their individual and careful study to every case coming to their hands, and put forth their best efforts in the construction of this particular work, and indeed the same thought applies in the production of mechanical work of all kinds.

The habit so prevalent in the dental profession of employing dental laboratories almost exclusively, is not conducive to the attainment of skill and experience, especially among the younger element of the profession.

I shall not take up your time by going into a general detail of the methods essential for the full construction of a bridge. I shall only take the liberty of bringing to your notice several mechanical considerations.

### **Preparation of Abutments.**

Having carefully fixed in my mind the crown and bridge I desire to construct, I proceed quickly and as painlessly as possible to the reduction of tooth substance, having in view the proper shaping of an abutment, or abutments. Much valuable time may be saved, and the operation shortened, by adjusting, whenever possible and practicable, the rubber dam over the teeth to be reduced, and here comes in one of the points where humane treatment is indicated. Therefore, previous to the adjustment of the rubber dam, treat the margins of the gums surrounding the necks of the teeth with cocaine, and thus the rubber dam clamp and ligature can be deeply depressed around the neck of the teeth and thereby the greatest possible exposure be obtained for the rapid reduction of tooth structure, insuring the more accurate preparation of the abutment. Teeth thus protected and free from saliva, afford superior opportunities for rapid work and accurate shaping of abutments. This method will be found particularly useful in locating Logan, Davis, Twentieth Century, White's, or any other make of all porcelain crowns on the six anterior teeth. While thus reducing tooth structure, compressed air becomes a factor for humane treatment. My assistant directs a stream of cold air, thus preventing the overheating of the tooth being operated on. I do not want it understood that I use the rubber dam in all cases. Circumstances govern. For the reduction of tooth substance, I use knife-edge carborundum wheels of varying sizes made by Lee, Smith & Co. With the sharp knife edge one can slice the bulging portions of bicuspid and



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molars on anterior and posterior approximal surfaces, and likewise on labial and lingual sides, and this done, the crowns will almost be in the form of a square. Next carry the now blunted disks backward and forward lightly over the occlusal surface, thus avoiding long continued pressure and undue friction on one spot. This class of disks will do away with the severe jarring which a coarse stump wheel produces on the nerves of patients.

Having reduced the sides, and occlusal surfaces of the tooth, I next with sandpaper disks complete the final shaping and polishing of the abutment. The occlusal surface of bicuspid or molar should be as near level as an accurate eye and skilled hand can produce. Uneven surfaces, or pivoted points on occlusal surfaces are factors in loosening of single crowns, and even bridges.

One of the great sources of failure in crown and bridge work is the defective and slovenly prepared abutment. If the teeth are absolutely too painful for patient to bear, then by all means use pressure anesthesia to reduce sensitiveness, and then the abutment can be accurately shaped. If an abutment requires filling, avoid cements; use a hard, quick setting amalgam, and when thoroughly hardened, complete with nicety the abutment.

After the preparation of the abutments, our next step is to construct Richmond or shell crowns and dummies, but I shall not attempt to discuss their technique, only so far as one is concerned. I allude to bicuspid shell crowns, and under certain conditions sometimes a cuspid shell crown. To avoid a large display of gold, I have for some years frequently employed pure platinum for this class of crowns, the body or barrel portion platinum, and the cusps struck up out of pure gold and properly reinforced. The eye catches the gold cusp which appears like a filling, and the platinum being of a lighter or grayish shade, is hardly observed.

### **Porcelain Faced Crowns.**

In the construction of the Richmond crowns, in fact any style of crown requiring a pin facing, the greatest care must be exercised to have the porcelain pins and backing absolutely clean, and if the porcelain has been ground, those parts should be thoroughly polished. I believe it bad practice to bend the pins, clamping them on the backing, because it strains the porcelain.

In building a bridge my rule is to construct each tooth, or dummy, by itself. This done I assemble all in proper position on the articulating model, leaving for final soldering the joints between parts only, and thus with a small quantity of solder, the bridge is completed, and the ex-



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pansion and contraction incident to soldering reduced to a minimum. This process takes a little more time, but, gentlemen, it produces more satisfactory results.

For purposes of greater accuracy, all abutment pieces should be steadied before taking bite and impression by coating inside of caps with wax, and when seated, thoroughly chilled. Then secure bite, careful plaster impression, a sump model, assemble all parts, invest and solder. After taking the impression, boil out the wax in the caps, and then while running sump model, place in each abutment cap perpendicularly a good sized carpet tack, and then complete the model. In case of breakage, the tacks remaining in the main portion of the model become guides to accuracy in the replacement of broken parts.

The most unsightly bridges which have come to my notice are large, upper arch bridges usually located on the two cuspids and molars. To produce artistic results in this class of bridges, I have adopted the following method: With all caps steadied on the abutments, the bite is procured and followed by an accurate plaster impression. Remove the wax from molar caps, but leave a slight amount in the cuspid caps and around the pins and then run a sump model, and when hard, prepare and place same on articulator. After removing the wax bite, solder a platinoid or gold bar to the posterior portion of the cuspid caps extending from cap to cap. While soldering, the wax in the caps and pins will disappear, and with a little force caps and bar will come off together. On the model and directly under the bar, and between the two caps, burnish some tea lead to afterward prevent wax from adhering to the model, and now return caps to position. Next, select six anterior plain teeth, such as are used in rubber work and wax them to caps and bar, thus forming a trial case. When arranged, try in patient's mouth and on this trial plate by trying and fitting may be secured correct length and width of teeth, proper shade, and the general expression well studied; then the selection of proper facings becomes an easy matter. Next, remove the trial teeth on the cuspid caps, and proceed to grind and fit the two facings; back the facings, wax to caps, after carefully articulating same, then remove from the bar the four incisor trial teeth and wax. Now take from the model the two waxed cuspids, invest and with solder finish the backing to contour, and when cool remove from investment, saw off the bar from each cuspid, shape and finish and return to model and then the assembling of the incisors becomes easy, because the cuspids become accurate guides, they having been previously tested, and along lines which permit of no mistake. A bridge constructed in this manner will not be an unsightly affair. This method eliminates all guess work.



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### **Investing Crowns and Bridges.**

Indifference and slovenly methods used in investing crowns and bridges, produce too frequently unsatisfactory fitting bridges, and result in broken and checked facings. The habit of pushing a case into a soft, moving mass of investment, which, in turn, rests on an uneven or soft surface, such as blotting paper, or even common paper, is bad practice. Proper sized boxes, from the ordinary sandpaper disk boxes to well selected larger sizes, should be used. The boxes filled about two-thirds with investment material will firmly hold, and securely encase every line and crevice of the invested bridge or crown. Save your sandpaper disk boxes; they are useful when investing a single crown, or small bridges.

In the construction of crown and bridge work, I have endeavored to bring to your notice several methods of exactness, not new to many of you, and yet I had a purpose. It is more than likely that many within the sound of my voice exercise even greater care in the construction of the class of work under consideration, and if the latter be true, have your conscientious efforts, when using the various makes of pin facings, and ordinary crystal cements for cementation, given you always ideal work, personal satisfaction, and peace of mind? So far as I am concerned, were the question put to me, I would answer in the negative.

Pin facings are our greatest source of annoyance. After we have put forth our best and most skillful efforts, a bridge comes from the investment with one or more checked, or even broken facings, and the sensitive and conscientious man becomes sick at heart. The pin facings so largely employed are, with slight improvement, the same we have used for years in the production of artificial teeth placed on gold and silver plates. They may do for the latter work, but are undesirable for crown and bridge work, where of necessity many times extremely large quantities of plate and gold solder are used. While this defect is well recognized, there is still another and it is this: Pin facings are not properly proportioned. They are usually too narrow at the neck, as compared with the incisal edge, and as a result, unsightly V shaped spaces between the teeth result when the case is completed. It would seem that the manufacturers could at least correct this one very glaring defect.

### **Detachable Facings.**

Naturally, the question arises, is there any product which overcomes the defects in pin facings? If there is, the facing must be detachable, and interchangeable, consequently subjected to no heat at all during the process of soldering. Also the facings must be of proper proportions, wider at the neck, thus overcoming the unsightly V shaped open spaces to which I have called your attention.



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Always on the lookout to take advantage of every improvement and advance in dentistry, I hailed with delight the Mason facings, when they were placed on the market. It was a product never fully appreciated by the profession. Since the introduction of the Mason facings, advances have been made in the production of detachable facings, and among the advances, I allude to the Steele facings, made at Columbus, Ohio. Two years ago I began using these facings, and with very satisfactory results. I now never worry over checked facings, nor broken facings, consequently I have peace of mind.

With the lapse of time I have no doubt that American brain and enterprise will even surpass the product named, but until that time arrives, the Steele facings offer to the artistically inclined bridge worker advantages which he can not consistently pass by. Stop and think for a moment what it means to us to be able to use a facing which does not receive the heat incident to soldering process. You will realize that it means no discoloration of facings, and a bridge when completed absolutely free from checked and broken facings, unsightly gold tips, and no display of gold between facings, the latter due to the more uniform width from incisal edge, to the neck of facing. Again, bridges can be inserted almost immediately after extraction, and later, when absorption of the gums has taken place the facings can be replaced with longer ones without removal of bridge. Time is saved in the construction of bridges, and if repairs are ever needed, they can be made easily and quickly.

Sometimes brother dentists have said to me, "I prefer to use pin facings because they are cheaper than interchangeable ones." The dentist who reasons thus makes a mistake, and the quicker he divests himself of the idea of the cheapness, when constructing crown and bridge work, the better for him. I think that the very best materials should be used by every ethical dentist; he thereby places himself on a higher plane, and has the conscious satisfaction of having given to his patient the best that money could buy, and he in turn will then be justified in demanding a fee somewhere near commensurate with his best efforts and expenditures.

### **Cements and Cementation.**

While pin facings have been a source of annoyance, many times, misfortunes from another source have come to me. I refer to the cements used in the cementation of bridges. During many years the cementation of crowns and bridges has been with me a subject of close study, and many, many times I have wished I might with ease remove a crown or bridge. One of the causes I may say was, for instance, this complaint: "Doctor, that bridge you set in my mouth bothers me, because one or two of the abutments ache at times, are sensitive to



heat and cold;" or the patient has reported a cap on an abutment loose, while the others remained perfectly firm. To remove a bridge under such conditions (and yet safety and duty suggest it) means tremendous labor, particularly if it includes one or more Richmond crowns. The conditions mentioned have confronted nearly every dentist, whether of limited or extensive experience. Many valuable abutments are destroyed because of the difficulty attending the timely removal of bridges set with crystal cements. So far as single crowns are concerned on anterior roots, for years I have employed gutta-percha, and with most excellent results, but for bridges up to about three years ago, I continued using the ordinary crystal cements. Three years ago I began using Evans's gutta-percha cement for setting bridges, using it cautiously at first, but now I use it almost exclusively. As a result of my observation and experience, I now find myself in a position easily and quickly to remove a bridge without injury to an abutment. I now make it a rule to instruct my patients to return for an examination twice each year, and if dangerous symptoms present themselves, I remove the bridge and perform such services as will best benefit my patient. Had I used the cement named earlier in my practice, and observed the rules I now do, I am sure numerous valuable abutments which were lost would now be in a good state of preservation.







### **Chronic Suppurative Maxillary Sinusitis.**

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By ROBERT LEVY, M.D., Professor of Loryngology and Rhinology, Denver and Gross College of Medicine.

*Read upon invitation before the Colorado State Dental Association, June 21, 1906.*

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In no department of medicine are dentists and rhinologists brought closer, nor so close together, as in a study of diseases of the maxillary sinus, and much of the confusion, as well as variance of opinions in regard to the etiology and treatment of affections of this cavity, have been the result of a difference in point of view.

Many years ago our attention was called to this wide difference of opinion between dentists and rhinologists, but it is gratifying to note that these differences are being gradually dissipated, owing to the closer bond between medical and dental education. A solution of problems such as the one under consideration and others that are upon the border line of dentistry and medicine, can only be satisfactorily solved by a still closer union of these two professions. In fact so convinced am I of the necessity of this that I can not accept a division into two separate professions, but agree with others who class dentistry as a special branch of general medicine. If all dentists were graduates in medicine or at least pursued the study of medicine during a portion of their college training, and if all surgeons, especially those interested in diseases of the head and upper respiratory tract, devoted a portion of their time to a study of dentistry, many questions, the solutions of which are to-day a matter of conjecture, would probably soon be finally answered.

It is with a view of more closely establishing the growing relation between dentistry and rhinology, as well as of establishing the relative



importance of these two branches of medicine in the etiology and treatment of diseases of the antrum of Highmore, that I venture to place before you certain well-recognized facts.

**Antial Affections  
Differentiated.**

The term chronic suppurative maxillary sinusitis covers, in my opinion, a purulent affection of inflammatory character which dentists and physicians are more frequently called upon to treat than any other of the diseases of this cavity. Acute *catarrhal* inflammation of the various accessory sinuses nearly always complicate acute rhinitis, especially when of severe or epidemic type. Acute *purulent* affections of these cavities are comparatively rare except as the result of an exaggeration of pre-existing or latent chronic suppurative processes. The term empyema so commonly used, indicates only one variety of chronic supuration of the antrum of Highmore, namely that in which the normal opening is nearly or completely closed.

The ease with which the maxillary sinus may become diseased depends upon certain peculiarities in its anatomy and its anatomical relations. (1) It is almost a closed cavity, making it difficult of ventilation and drainage. (2) It is irregular in shape; its irregularity is frequently further increased by the development of bony septa, all of which makes it still more difficult of ventilation and drainage. (3) It has an opening near its upper boundary when the individual is in the erect position, making it still further difficult to drain. (4) Its lining mucous membrane is continuous with that of the nasal cavity and extremely prone to participate in the numerous inflammatory septic and non-septic affections of the nose. The nasal mucous membrane may be attacked by pathogenic micro-organisms, but owing to its location and easy access to the outer world, it readily throws off any attempt at suppurative processes. When, however, the mucous membrane of the maxillary sinus is invaded by pathogenic germs, the peculiar anatomical characteristics just enumerated, permit these germs to remain and flourish.

**Source of  
Infection.**

The maxillary antrum is surrounded upon all sides by structures prone to infectious disorders, extension of which to this cavity is easily accomplished. Upon the one side we have the teeth, which are a constant menace to the antral cavity. The frequency with which chronic purulent inflammation of the maxillary sinus results from direct infection from the teeth is variously estimated. Dentists find it the cause in nearly every instance, while it is significant that so good an authority as Kyle, viewing the question from the nasal side, finds fully 70 per cent. due to dental cause. Devitalized pulps and alveolar abscess are probably the most frequent dental cause. Necrosis or suppuration following the in-



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jection of chloride of zinc into the tooth cavity, and the application of arsenic for the purpose of destroying the pulp in a decayed tooth, have been recognized as causative factors.

In a case occurring in my own practice, the specimen of which I present herewith, the suppuration of the antrum was cured after the extraction of a tooth at the end of one root of which a projection of gutta percha is seen. In this case as well as in the cases cited above, it is doubtful whether the arsenic, the chloride of zinc or the gutta percha were as important in the production of the affection as was the condition for which these substances were injected into the tooth, and from which infection could readily proceed to the antral mucous membrane. As Marshall tells us, the devitalized pulp may give rise to septic inflammation of the lining membrane of the antrum without giving the least evidence of the real cause other than a slight discoloration of the tooth. I am satisfied that innumerable cases of chronic suppuration of the antrum resist treatment because this one cause remains unrecognized. The ordinary tests for a diseased tooth, fail to throw any light upon the cause, and the dentist, who is loath to interfere with teeth having the semblance of health, eliminates these as a cause. On the other hand teeth may be sensitive, or even painful, and still bear no causative relation to sinus trouble. In other words the dental cause is frequently so obscure as to be decidedly misleading. The relative importance of the dental cause has been decidedly diminished since the first severe epidemic of influenza in this country. Immediately following this epidemic, so many cases of purulent inflammation of the accessory cavities were observed that it was not difficult to determine that grip was the prime cause. This, of course, brought into greater prominence the contentions of rhinologists, who for many years had attempted to establish the nasal cause. Poor as the drainage of the maxillary antrum is, it is, nevertheless, sufficient in normal conditions to protect its cavity. When, however, inflammatory processes, nasal neoplasms, deformities or other lesions develop which may obstruct completely or partly the normal opening, the secretions in the antrum accumulate and give rise to trouble. If these secretions, which are good culture media, become inoculated by pathogenic bacteria there readily develops septic inflammation resulting in pus formation. It was shown by Howard and Ingersoll of Cleveland that micro-organisms of many characters are found in these cases. Among the most common are the diplococcus, staphylococcus, streptococcus, Friedlander's bacillus and the bacillus of influenza. Introduce these germs into a vulnerable cavity lined by a vulnerable mucous membrane and it would be strange if serious consequences did not follow. True, septic inflammations involving the nasal and antral mucous membrane recover promptly as a rule, so far



as the nose is concerned, but it is an established fact that the inflammation in the antrum often persists, thus giving rise to chronic purulent sinusitis.

As stated above the explanation of this is in the peculiar anatomical characteristics of this cavity. One of the most important causes of chronic suppuration of the maxillary antrum is found in its peculiar relation to other accessory sinuses. This has been pointed out by a number of anatomists and, while its importance is recognized by all, it should be emphasized upon every occasion. The antrum of Highmore may be made to act the part of a receptacle and a reservoir for purulent discharge from other accessory cavities, principally the frontal sinus and the anterior ethmoid cells. These cavities, especially the latter, are very commonly the source of purulent discharge in the nose. Their orifices or exits are seen in a groove known as the *hiatus semilunaris*, which has a somewhat downward and backward course. The frontal sinus and the anterior ethmoid cells open anteriorly in this groove, the antrum of Highmore being somewhat further back. It is almost unavoidable for pus flowing into this groove to pass into the maxillary antrum. This relation is even more closely established in some by a juncture of all of these openings, so that a probe may be passed from the frontal sinus into the nose and directly into the antrum. It is not, on the other hand, uncommon to find infection of the anterior ethmoid cells and the frontal sinus the direct result of suppurative processes from the antrum, for in our sleeping hours pus finds its way out of the antrum and into the cavities above. These important anatomical relations can not be overestimated and no one will deny that many cases remain uncured because of our failure to recognize these relations.

In a certain proportion of cases the teeth that are in relation to the antrum may be affected and still not be the cause of the antral lesion. It has been shown that at times prolonged suppurative processes within the maxillary sinus secondarily invade the teeth. The disease within the antrum being of a latent character is insidious in its progress and productive of but few symptoms sufficiently severe to attract the patient's attention. When, however, a tooth becomes infected and an abscess at its root forms, certain pronounced symptoms manifest themselves. The affected tooth may be removed and its relation to the antrum clearly established, but it must not be forgotten that this relation may be effect and not cause.

Our attention should be called to one other fairly important cause, namely, the presence within the antrum of foreign bodies. These may find their way into the cavity through an accident, or as the



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result of displacement of gauze or drainage tube from previous operations, and through their presence prevent the favorable outcome of an otherwise curable case.

Malposed and unerupted teeth have been known to cause persistent suppuration of the antrum. In the case from which the accompanying tooth was removed (tooth exhibited), the patient had for many years suffered from pain in the side of her face and a purulent discharge from the nose. Tooth after tooth was removed until the young woman was obliged to wear a plate at a very early age. The antrum had been opened with but slight relief. It was only after a radical operation that the cause was discovered and its removal followed by complete cure. Many instances of this kind are upon record and when a patient presents symptoms of maxillary sinusitis, of chronic character, an examination of the teeth which results in the discovery that one is missing should at once raise the suspicion that this missing tooth may have erupted into the maxillary antrum.

### **Diagnosis of Sinusitis.**

Time will not permit a discussion of the pathology, symptomatology, diagnosis and prognosis of this affection. I should like, however, to call attention to one diagnostic procedure which has not received sufficient consideration, in my opinion. The ordinary methods of diagnosis, such as a consideration of the history of the case, the transillumination test, the position of the patient encouraging the evacuation of the cavity, will all fail in obscure cases. Exploratory puncture, however, if properly practiced will give us absolute and definite results. Exploratory puncture should be made in such a manner that a normal cavity will not become infected through this procedure. It is, therefore, justifiable to open, by exploratory puncture, the maxillary antrum only from the nose, for there is already a communication between the antrum and the nose and thus no further source of infection is brought into the case. The opening should be made by means of a small curved trocar in the inferior meatus immediately beneath the anterior extremity of the inferior turbinate bone. This can readily be done under cocaine anesthesia. Should the antrum be filled with pus it may be seen to flow out of this opening immediately upon puncture, but this occurs only when the antrum is full. A small quantity of pus will not flow out. Aspiration through the opening may be practiced, but even this will not always suffice. A perfectly feasible and positive procedure, however, is the following: After puncturing the antrum a small canula is allowed to remain in the opening. The nose should have been previously cleaned of all pus. Then by means of compressed air or a Politzer bag, air should be forced through the canula into the antrum. If this is done while the nasal cavity is under



careful ocular observation, pus in small or large quantity will be seen to flow out of the antrum through the osteum maxillare into the middle meatus. No more positive proof of antral suppuration can be obtained.

**Treatment.** To discuss all of the various forms of treatment that have from time to time been recommended for chronic suppuration of the antrum of Highmore, or even to describe in detail the methods commonly in vogue at the present time, would be an unnecessary and tedious task. The two indications that have been classically handed down to us as covering the essential features in the treatment are free drainage and antiseptic irrigation. To this should be added what, in my opinion, is of even more importance if this were possible, namely, the removal of the cause. How frequently have we seen an opening made through the alveolar process, thus establishing free drainage followed by thorough and persistent antiseptic washing, the result of which has been absolutely nil. It should not be forgotten that the important point in outlining a plan of treatment is a definite determination of the etiology that may be operating in a particular instance. A necrosed tooth may have been the original cause of the antral infection. The diseased process continuing, however, for an indefinite period, has altered the character of the mucous membrane lining the antrum resulting in polypoid degeneration or even in the development of distinct polyps. Or this same process may have continued into the nose involving other accessory cavities, especially the ethmoid. How useless it would be to remove the original cause, namely the necrosed tooth, enlarge the opening which usually leads through the root of the tooth into the antrum, wash it out and expect to obtain a cure. This method of treatment will only avail where the diseased process has been of comparatively recent origin or where it has been mild in character. On the other hand, of what avail would thorough intra-nasal treatment be even though a large opening be made into the antrum and its contents thoroughly evacuated, were we to overlook the original cause in the presence of a necrosed root? How, then, are we to decide as to the best method of treatment? There are two plans open to us. One the conservative, the other the radical.

**Conservative  
Methods of  
Treatment.**

The conservative treatment consists in (a) making an opening through the root of the tooth which may have been or is desirable to be removed; (b) through the canine fossa; or (c) from the inferior meatus of the nose. After such an opening drainage should be maintained and the parts irrigated twice a day with normal salt solution, boric acid solution, or some similar non-irritating antiseptic medication. After thorough cleansing, the cavity should be freed of the



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superfluous solution by a current of air passed through it, this to be followed by an injection of such remedies as nitrate of silver, 2 to 5 grains to the ounce; argyrol, 10 to 20 per cent., or similar preparations. The conservative method of treatment is advisable in comparatively recent cases, in those in which a tooth can be with fairly good reason demonstrated to be the cause, in old individuals in whom a more radical procedure might be contraindicated, in those who decline radical measures and in all doubtful cases in which it is definitely stated to the patient that this method is a conservative one and adopted tentatively in the hope of possibly avoiding a more serious operation. As to the choice of operating through the alveolar process, the canine fossa or the inferior meatus, it is my belief that an opening through the canine fossa of small size and merely for the purpose of drainage or irrigation is the least useful of the three methods. The opening through the alveolar process should be the method of choice principally where a necrosed tooth bears a casual relation to the antral disease. The operation of choice where conservative methods are desirable and where the tooth can be excluded as bearing upon the etiology, is through the inferior meatus. The principle advantages claimed for this procedure are, first, the opening is nearly, if not quite as low as when made through the floor, and, second, the danger of reinfection by the numerous micro-organisms that are found in the mouth is excluded.

Bearing in mind that the dental cause operates in an extremely large proportion of cases, it would appear that the operation through the alveolar process, although one of the earliest procedures for this disease, still remains one of the most desirable.

### **Radical Treatment.**

After all, the majority of cases of chronic sup-  
puration of the maxillary sinus must come, sooner or  
later, to more or less extensive radical operation be-  
fore a cure can be effected. The objects to be ob-  
tained in a radical operation are the complete and thorough removal of  
the contents of this cavity, the removal of necrosed tissue and sup-  
purative processes that may be adjacent to the sinus and the establish-  
ment of a large opening through which after-treatment may be carried  
out. Should a suppurative process be found in the ethmoid or should ob-  
structive lesions be located in the nose, or should necrosis of the alveolar  
process or a carious tooth be found, it is wise to remove these as far as  
possible by a preliminary operation. Suppurative ethmoiditis can in many  
instances be corrected by intra-nasal operations. Suppurative inflamma-  
tion of the frontal sinus is often associated with and the consequences of  
ethmoiditis, therefore, after a reasonable attempt at correcting these con-  
ditions by intra-nasal methods further operation upon these cavities should



be deferred until the antrum is operated upon, when all may be attacked at the same time. Any one who has attempted to reach every portion of the maxillary antrum through a small opening into the alveolar process or through a fairly large opening in the canine fossa, or even through a moderate sized opening through the nose, cannot but admit its impossibility. An examination of the antrum upon the cadaver will still further convince one of the futility of reaching every recess of this pyramidal shaped cavity by any means except by an almost complete removal of its anterior wall.

The operation which is most rational, meeting all the indications and giving the best results, is some modification of the Caldwell-Luc or Denker operation. This is performed in the following manner: Under complete general anesthesia the patient is placed on the operating-table with the head and shoulders slightly raised. A retractor holds the cheek well away from the field of operation. The angle of the mouth is gently packed with long strips of gauze, to which a hemostat is fastened to prevent its slipping away. This is for the purpose of absorbing the blood and thus preventing its flowing into the pharynx. An incision is made slightly above the alveolar process, beginning just external to the median line and passing backward to the malar process. This incision is carried through the mucous membrane to the bone. With periosteal elevator, the mucous membrane and periosteum are detached from the underlying bone, laying free the anterior wall of the antrum. By means of chisel and *rongeur*, sufficient of the anterior wall is removed to enable one to view the entire interior of the antral cavity. Reflected light or an electric headlight are absolute essentials for a satisfactory view of the field of operation. The cavity is now carefully explored for foreign bodies, tumors or bony septa. With a sharp curette the mucous membrane of the antrum is carefully removed, the various angles of the cavity demanding especial attention. The ease with which the superior or anterior inferior angles are overlooked is responsible for many failures. The anterior inferior angle is especially prone to escape us and for this purpose the anterior wall of the antrum should be removed as far as the angle extends. The next step in the operation is the removal of a large portion of the nasal wall. In doing this it is advisable to remove the bone first by means of chisel and forceps, and if possible to avoid penetrating the mucous membrane. The portion of the nasal wall to be removed is that lying close to the floor of the antrum and in its anterior third. In order to do this successfully it is found desirable to remove the anterior third of the inferior turbinate, which may be done at the time of operation or at a previous sitting. After removing the bony wall, an incision is made through the mucous membrane either along the lower border of the opening or along its upper border.



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This provides for a flap of mucous membrane, which is readily packed into the floor of the antrum or into its upper portion, depending upon which incision is used. After thorough cleansing, the antrum is now lightly packed with iodoform gauze, the end of which is allowed to protrude into the nose. The mucous membrane and periosteum which had previously been separated from the anterior wall of the antrum are now allowed to fall over the opening and catgut sutures used to unite the line of incision. The packing is permitted to remain for from three to five days, when it is removed either at one sitting or gradually, depending largely upon the general symptoms and discomfort of the patient. It will be found that the external incision has rapidly healed and that a large opening remains between the inferior meatus and the antrum. It is rarely necessary and in fact not advisable to repack the antrum. This cavity, should, however, be thoroughly flushed through the nasal opening with a normal salt or boric acid solution. Irrigation should be done daily until the secretion has materially diminished, after which irrigating two or three times a week will be sufficient. This should be done at intervals of longer periods until it is apparent that there is no further necessity for cleansing.

It would be manifestly impossible to assure a cure in all cases of chronic suppuration of the antrum, even by the most radical measures, but it is safe to assert that when this operation is done with every attention to detail carefully carried out, it offers the best prospect for complete and permanent recovery.

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### **Amalgam Restorations Better than Gold Crowns.**

By DR. GEO. R. WARNER, Grand Junction, Colo.

*Read before the Colorado State Dental Association, Denver, Colo., June, 1906.*

In the routine of practice one is apt to fall into the habit of doing operations without due consideration of the "Golden Rule." If one is not careful, one is in danger of becoming a mere automaton, putting gold fillings in this place, amalgam fillings in that place and gold crowns in all places; the last being perhaps the most common and pernicious practice.

A case is before us of a molar or even a bicuspid with destruction involving an area from a small approximo-occlusal cavity to the entire crown. It is plain that the easiest way to restore that tooth is with a shell crown. The greater the amount of tooth involved, or the more hardened we are, the easier is our conscience.



**Evil Effects of  
Shell Crowns.**

Now for the Golden Rule. I want to ask you gentlemen what you would do if that tooth were in your own mouth? Would you like to have a gold band enclosing the gum around one of your teeth, or impinging upon the alveolus? Would you enjoy having a cupboard shelf in your mouth to carry a reserve supply of food from one meal to another, or longer? Would you appreciate being a walking advertisement of the jeweler's art in dentistry?

"Oh," you say, "if a crown is properly fitted, one would have none of these difficulties. Moreover, a shell crown should be used only as a last resort."

I tell my patients the same thing, and after I have told them they think there is no such thing as an ill-fitting crown; unless they have had one and notice things.

But, gentlemen, who of you will exhibit ten shell crowns with the certainty that there is one of them that does not present some of the features that I have condemned? And as to their being used only as a last resort, you know well that thousands of shell crowns are being put on every day that should never have been put on. I have taken off shell crowns and restored the teeth with fillings which have preserved the teeth for several years—and no doubt you have all done the same thing. Quite recently I saw a cuspid that had only a small gingivo-labial filling in it; the tooth having had a shell crown on it because of that cavity. The crown was removed because of a hole in it and has never been replaced.

You may think that you make perfect crowns; and some of them may approach perfection; but the gum will know about that sharp edge, and food or other matter will find that pocket. You may deceive the patient, or honestly deceive yourself, but the tissues surrounding that tooth you can not deceive. They will not only know about it, but will make known the trouble.

Suppose we put a nicely contoured amalgam filling in that mesio-occlusal cavity—or restore the entire crown with the same—the margin nicely polished and the occlusal surface reasonably perfect. Look the matter squarely in the face, which would you prefer? I've made up my mind and will devote the rest of my remarks to my preference—amalgam restorations.

**Amalgam  
Restorations.**

Amalgam is not new, and in presenting this subject, I do not for an instant imagine that I am telling you anything that you do not already know. I simply want to bring to your attention the possibilities of this material and emphasize the advantages in using it in many teeth that are now condemned to shell crowns.



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With our accurately scientifically made, quick setting alloys, we have very little contraction or expansion. The flow is minimized to an inappreciable extent and the edge strength is very good. The color is less objectionable than formerly, especially if the filling is well polished. Even if the filling should flow some, it could hardly flow into the interproximal space as far as the band on a shell crown often extends. If it does draw away from the tooth margin, it may be years before decay occurs and when it does take place, it is easily repaired.

### **Technique of Amalgam Restorations.**

In restorations involving more than one wall, a band matrix should be used. It can be made either of thin copper or the Angle band material, which comes in different widths. Dr. Clapp of Boston ties and wraps his matrices with a ligature, but I prefer them soldered to fit the case in hand; or I have enough made up of different sizes so that one can be selected to fit. The band should be firm enough to withstand the lateral pressure of heavy condensation. They should fit as closely as possible at the gingivae, and yet allow for contact points. An orange-wood wedge will nicely preserve the interproximal space and help to hold the band. If I feel that I can not obtain sufficient anchorage in the tooth to withstand the probable strain, I set one or more pins in the canals.

If there is any question about the strength of a wall, I cut it off far enough gingivally to give good thickness to the amalgam over it. I feel that a single standing wall is more or less a menace to the operation, and unless esthetics require its preservation, I never hesitate to cut back most heroically. If it is a buccal wall and that, or the adjoining teeth, show a tendency to buccal decay, I cut back under the free margin of the gum; reducing the area of liability as far as possible.

A carborundum stone is one of the best instruments for cutting down the walls when the whole occlusal surface is involved, or in many cases where one or more walls are left standing. A chisel is the instrument to test a wall with if one is in doubt. If a weak wall is left standing for cosmetic reasons, it should be supported with cement.

The base of the cavity should be broad and flat in proportion to the size of the filling. If one has any doubt about these fillings standing, just study for a minute the base, or anchorage, with the stress it has to bear and compare it to an incisor pin crown. In your molar you have a broad base, short leverage, and stress largely direct. In the incisor you have a narrow base, long leverage, and heavy lateral stress in most cases. Yet no one hesitates to put on an incisor pin crown without a band, or to build up large contour gold fillings.



The walls of the cavity should be nearly parallel, with no overhanging margins to interfere with access in placing the filling, or to fracture in the future.

The alloy should be packed with broad faced serrated instruments, using heavy pressure. A foot plugger in an automatic mallet packs the amalgam well and is especially good along margins and for contouring the matrix.

A great deal of care should be used in carving the cusps, reproducing the anatomical features of the particular tooth and getting a good articulation. In cases where the cusps of the occluding teeth are worn flat, I think it is advisable to produce more definite cusps than the articulation actually demands.

The carving is best done when the filling is partly set. The fissures and fine lines can be worked out with excavators of different patterns or broken instruments ground to the desired shape.

After the filling is finished as much as it can be with the matrix on, it should be left for twenty-four hours. Then remove the band and carefully polish with disks and strips.

In summarizing, I would say, that these amalgam restorations are strong, permanent, hygienic and serviceable operations. They fill a place in practice that can not be filled by crown or inlay, because of either hygienic or economic reasons.

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## The Treatment of Dental Caries.

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By ARTHUR C. WATSON, M.D., Denver, Colo.

*Read before the Colorado State Dental Association, Denver, Colo., June, 1906.*

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A writer in one of our text-books has said: "Caries of the teeth has been known in all historic ages of the world, and wherever pre-historic human remains have been discovered traces of this disease have been found. It seems to be and to have been universal in the sense of affecting all nations and tribes of the human race. All have not been equally affected, but no race of men seems to have escaped its ravages. There is no disease that is so common nor so widespread, nor any that so generally afflicts the human family." "Caries of the teeth consists of a chemical disintegration of the elements of the tooth," appearing first as a chalky opaque spot in the enamel, in which the structure is loosened and gradually broken down. The destructive process spreads toward the interior



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of the organ; the dentine, being softer, is more readily affected than the enamel. A cavity is thus formed, the interior of which is larger than its orifice. Thus we practitioners of dentistry are confronted with a condition which if unchecked will speedily result in a complete destruction of the tooth crown. And what is the remedy? I can not do better than quote from our text-book: "The treatment of dental caries consists in the removal of the diseased portions of the tooth, and the restoration of the contour of the tooth, by a filling of the least destructible material compatible with the tooth substance, and which is at the same time capable of protecting the margins and inner surfaces from further destruction." I quote this as I consider it so well said, so comprehensive; it takes in the situation briefly, simply, and completely. It was true when it was written, it is true to-day. In this age of progressive, up to date, modern dentistry, would it not be well to ask ourselves whether or not we are following the above line of treatment as closely and as diligently as we should? The advent of the gold cap crown opened up the way to a vast deal of discreditable treatment of dental caries. It presented to the indifferent an opportunity to get around an awkward situation, as well as an opportunity to get a maximum fee for a minimum of labor. The gold cap crown is at best but an untidy affair as compared to an ideal filling. Positively, I often wonder if the gold cap crown, as so commonly used, is truly a blessing to the human family in general.

### **Cap Crowns Condemned.**

A young dentist spends a full half day inserting a gold filling; when it is about finished, he finds, to his dismay, that it rocks. He makes another appointment with his patient and tries again, with the same result, except that this time he dismisses his patient. What more natural than that, having just such another case present itself, the young, inexperienced operator should resort to a gold cap, since there would be a considerable share of certainty of its remaining, for a time at least: For the less a tooth needs a cap, the easier it is to place upon it a cap which the force of mastication can not readily dislodge. The average patient, too, would be more truly pleased with it than with a commendable filling, and very likely think it worth more.

I am reminded of one of my patients; throughout the twenty years she had been in my care, I had congratulated myself that there was not an absent tooth, nor an artificial tooth, crown, nor cap in her mouth. One badly broken-down lower second bicuspid I at last had to cap. I felt truly sorry, felt deserving of censure. What about my patient? She was delighted, thought that gold cap the finest work I had ever done for her.



I refer to these instances simply to emphasize how great is the temptation to depart from the unquestioned proper treatment of dental caries as quoted, and while I have the greatest respect for gold cap crowns, where indicated, I am firmly of the opinion that they should only be employed as a last resort. Is it not a pleasure to each one of us to examine a set of natural teeth and find them all present, and being saved if need be by good, wholesome, serviceable fillings? No artificial crowns, no bridges. This I consider ideal dentistry. Is such a pleasure becoming more, or less frequent?

Assuming then that "the treatment of dental

**Cavity Treatment.** caries consists in the removal of the diseased portions of the tooth, and the restoration of the contour of the tooth, by a filling of the least destructible material compatible to the tooth substance, and which is at the same time capable of protecting the margins and inner surfaces from further destruction," let us briefly consider, first, "the removal of the diseased portions of the tooth." Of this much might be said; it of course would properly call for a description of cavity preparation in its entirety, which is not within the scope of this paper; but the enormous importance of cavity margins we must notice. What are we to understand by the diseased portions of the tooth? Simply those portions that are completely broken down? By no means; but all that are in any way affected. The primary chalkiness radiating from the central point is included, and this is of great importance. If we stop short of including all of the affected area, we most certainly invite failure.

Having, then, removed all the diseased portions

**Filling Materials Compared.** of the tooth and beveled the cavo-surface angle, we have next to consider "the restoration of the contour of the tooth, by a filling of the least destructible material compatible to the tooth substance, and which is at the same time capable of protecting the margins and inner surfaces from further destruction." This is more easily said than done, for we have no one filling material in which are united all the desirable qualities, as "Indestructibility in the fluids of the mouth; adaptability to the walls of the cavity; absence of shrinkage or expansion; resistance to the force of mastication," which are of primary importance, and "harmony of color to that of the teeth; non-conductivity of thermal changes; ease of manipulation," which are of secondary importance. We are, therefore, of necessity compelled to exercise our best judgment in selecting from the materials that we have. The variety is not great, for we have among those filling materials, which we may speak of as being permanent in their character only, gold, tin, amalgam, and porcelain.



## ITEMS OF INTEREST

Gold has been used as a filling material for more than one hundred years, and throughout those years has enjoyed the distinction of being the closest approach to an ideal material for filling carious cavities in teeth. Its indestructibility, adaptability, absence of shrinkage, absence of expansion, resistance to the force of mastication, and with experience in its use its great malleability, make it easy of manipulation; and while its color is not ideal, it at least does not discolor the teeth and presents a more pleasing appearance than does amalgam. Its most undesirable feature, that of great conductivity of thermal changes, may be largely overcome by lining the cavity with cement. There are, however, conditions often presented when it would be folly to use, or attempt to use, gold. Tin has several desirable qualities as a filling material, but on account of what it lacks—resistance to force of mastication, harmony of color, and ease of manipulation, I suppose—it has not become very popular. Amalgam has now been used as a filling material for carious cavities in teeth about eighty years, and is to-day undoubtedly employed in that capacity more frequently than all other materials combined. Its indestructibility, adaptability, and, to-day, comparative freedom from shrinkage or expansion, its great ease of manipulation, all tend to make it indispensable. Its lack of resistance to the force of mastication and color are its most objectionable features; but these are largely overcome by limiting its use to such cavities as are hidden from general view and supplying the occlusal surface with gold. Much might be said of the value of a filling composed of both amalgam and gold, thus getting the combined advantages of each. A badly broken-down tooth may be built up on its approximal surface to the occlusal third with amalgam, the remaining part of the cavity being filled with gold, the amalgam doing its work well, without exhibiting any of its objectionable features. Likewise the gold, save that of color.

To-day much is said of porcelain as a filling material for carious cavities in teeth. Many are enthusiastic in regard to it. I do not share that enthusiasm. Its chief qualifications, harmony of color, non-conductivity, absence of shrinkage or expansion, indestructibility in the fluids of the mouth, are insufficient to my mind to compensate for that which it lacks, adaptability to the walls of the cavity, resistance to the force of mastication, and ease of manipulation.

What does it avail, though the porcelain itself be indestructible in the mouth fluids, if the line of junction between it and cavity walls is supplied by a material which is destructible; or what does it avail if the porcelain itself is able to withstand the action of the fluids in the mouth, and yet not be able to withstand attrition and the force of mastication? When we find the ideal cement with which to cement the porcelain in the



tooth cavity, I fancy we will then not need the porcelain, for with that ideal cement we will fill the cavity entirely.

Until such a time then as is given us a filling material which has more nearly all of the desirable qualities and fewer of the undesirable qualities than gold or amalgam, my conclusions are that in general the treatment of dental caries consists in the removal of all diseased portions of the tooth and the restoration of the contour of the tooth by a filling of gold, or a filling of amalgam, or a filling of amalgam and gold.

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### **Thoughts on Porcelain.**

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By DR. J. ALLEN SMITH, Colorado Springs, Colo.

*Read before the Colorado State Dental Association, Denver, Colo., June, 1906.*

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So much has been said and written on the subject during the past few years that perhaps I should call this short paper a review of porcelain. Yet, after all this, and in the face of results not obtainable with any other material, we hear men of recognized ability in the profession decry the use of porcelain.

It is hard, I admit, for men who have for years measured the merits of other filling materials by the "gold standard," to have a new standard, with a ratio even lower than "16 to 1," force itself into their practice, requiring renewed energy and hours of experimental work.

Had these same men, after a few unsuccessful attempts at gold fillings, become discouraged dentistry would have lost some of its best operators.

What matter if in our early efforts we do have failure? Suppose we do have an inlay come out once in a while? The principle is right—we are using the best tooth preserver at our command. We are using a material that will protect the enamel from fracture, the dentine from decay, and the pulp from irritation.

Porcelain is compatible with tooth structure, durable, a non-conductor of thermal changes, neutral, no electro-chemical action on dentine, artistic in effect. These are some of the points of superiority over other materials for the preservation of tooth structure—a much coveted result before the days of porcelain, now realized far beyond the expectations of the most sanguine.

The retention of an inlay depends a great deal on the depth of the cavity. To carry a matrix into a deep cavity without tearing is a difficult and delicate operation. You will find a very thin strip of linen wrapped around the

**Advantages of  
Porcelain.**

**Retention.**



## ITEMS OF INTEREST

tooth and over the cavity, forming a cradle against which to burnish the platinum, to be a great aid in preventing it from drawing over the edge of the cavity—removing it before the final burnishing. By the use of vulcanite, tape, rubber dam, and gum camphor, a perfect matrix can be formed to almost any depth. Better results can be obtained by using platinum 1-2000 of an inch in thickness.

### **Fusing Porcelain.**

Experience teaches that it is hard to determine the exact degree of heat required to fuse porcelain. For instance, a porcelain said to fuse at a point several hundred degrees above the melting point of pure gold will, if exposed to the heat of the furnace at a lower temperature for from thirty minutes to an hour, thoroughly fuse, and produce a very tough and less porous mass than if fused at a higher temperature from two to four minutes.

If we would produce an inlay that will stand the stress of mastication in molars and bicuspids, we must spend more time and care in baking. To obtain the maximum strength in an inlay, each layer of porcelain must be brought to a biscuit at a low temperature, never bringing it to a glaze until the last baking, as each re-fusing will over-fuse the original layers, reducing its strength and burning out the color.

If we would attain the highest artistic effect, we must study the individual tooth with its varying shades; study the whole arch collectively as the

**■ Matching Color.** artist studies the landscape; observe its lights and shadows—touching here and there upon the canvas with varying shades, producing a perfect harmony.

It is not necessary, nor is it possible, to produce the exact shades found in an individual tooth. Better effects can be produced by combining two or three shades in an inlay than with one solid color, even though they do not correspond to the shades found in the tooth.

It has been said that the tooth will in time change color, leaving the porcelain to appear as a patch. That the teeth do change in color there can be no doubt. Say from the age of twenty to forty or fifty, there is a decided change, but if we found it necessary to change the porcelain in that time—which would be a rare occurrence—still we can say that it did better service than the average metal filling.

We have been taught to believe that the hardness of porcelain is a point in its favor as a filling material. I have sometimes thought that perhaps its hardness will prove its undoing, especially in occlusal surfaces. We find in all mouths more or less mechanical abrasion of the teeth, causing the inlay to protrude beyond the margin of the cavity. This I have observed in several cases that have returned to me a year or so after



the inlay was inserted. The use of the carbon paper will show an increased pressure on the inlay, producing a dislodging force that will displace or fracture it. This may be overcome by seeing the patient, say once a year, and slightly grinding the point of contact.

I believe failures in inlays are often due to imperfect cementation. In cementing an inlay, every step must be taken with the greatest care. Nothing is stronger than its weakest point and this is the weak part of an inlay.

Thoroughly spatulate your cement, prepare the cavity and inlay with great care and set under moderate pressure. I say moderate pressure because inlays are often fractured by too great pressure while the cement is soft, an accident which perhaps may not be discovered till later.

If in an approximal cavity, a piece of separating rubber will produce an even and constant pressure on the inlay. In other cavities a piece of soft wood may be used and held with gentle pressure while the cement is setting.

Some manufacturers are making inlay cements to correspond to the colors on the shade guide of the different porcelain bodies, which is a great help in selecting the required shade of cement.

In many cases I believe we could get better results with the all-porcelain jacket crown. Here we have an ideal crown; no metal to endanger the vital structure of the tooth or to destroy the translucency of the porcelain; no irritation to soft tissue, no post to weaken the root. In fact, one homogeneous mass—porcelain, cement, tooth—combining utility, durability, cleanliness, artistic effect, with the least possible destruction of tooth structure.

And now gentlemen, in closing, let me say that porcelain has come to stay. Its use may be more limited than we now think, but it has its place in dentistry and there is a great deal of hard work ahead for the so-called "porcelain cranks."

## **The Selection of Filling Material for Oral Prophylaxis.**

BY DR. E. J. LEWIS, Denver, Colo.

*Read before the Colorado State Dental Association, Denver, Colo., June, 1906.*

From ideas I have heard expressed and from the examination of various mouths, I am led to believe that too much attention has been paid to the filling we would like to insert, instead of carefully studying certain characteristics of our patients, the position of cavities and the probable cause. An operator may become convinced that gold, amalgam,



## ITEMS OF INTEREST

porcelain or cement is the only filling material that is practical and serviceable, but any conservative man will agree that such a conviction is misleading and detrimental to the high degree of perfection we would obtain and presents a disappointment in the final results in the treatment of dental caries.

We should carefully note the condition of the patient's mouth as presented, and if we find that no care is taken of the teeth, a material that is easily manipulated and inexpensive might be chosen, since it is not likely that gold or porcelain would remain any longer than the poorest material, under these unfavorable conditions. These principles are not to be practiced in every case, but what I have said is worthy of the consideration of a dentist who cares to retain the following of this class of patients.

If reasonable care is taken of the teeth, under favorable circumstances, almost any material may be inserted with a feeling of certainty that it will last as long as that individual filling material is expected. A thorough examination of the location of certain caries to be found in the oral cavity, will convince a reasonable operator that gold is not the material to be inserted, for no one is so proficient that he can (in certain known locations) manipulate gold with the same degree of perfection as amalgam. Therefore, if you are not sure of your ability, use a material that can be perfectly inserted in this adverse locality.

It is to be remembered that what is difficult for one man is perfectly easy for another: since this is true, it is the duty of every dentist to learn just what he can do, and under what circumstances it is possible for him to properly insert one material or another.

There is often a period in young people's lives when decay is so extensive that it requires the tongue of an orator to convince them that this condition may be checked and that such a period may never recur again.

**Cement.** When such a condition is present it has been my practice to fill the cavities with cement, which can be done with comparatively little expense to the patient.

This cement, if properly inserted, will last a year and possibly longer, and from the closest observation I am led to believe that there is no material, which will not discolor, that will render a cavity so immune from decay; and as far as adaptation is concerned, cement certainly has no superior, in fact it seems as nearly as possible to become a part of the tooth structure itself, and later when these fillings have become disintegrated, if the conditions have been improved, any filling material you choose may be inserted with at least a degree of certainty that they will be what we call permanent. However, if conditions do not warrant the placing of a permanent material I would advise filling again with cement. To some, all this may



seem useless, but in the end you will obtain the best results and gain the everlasting confidence of your patients, which is the one thing that is essential to success in the practice of dentistry.

In all labial cavities where access can be obtained, I know no reason why porcelain inlays may not be inserted, since they are more permanent (when properly adapted) than cement, and serve practically the same purpose. Just at this time I am not enthusiastic over porcelain; nevertheless it certainly has its place, and when indicated, a great mistake would be made not to use it.

As it is well known and generally conceded, the quick setting amalgams do more for the prevention of decay than any other single material. There are places where nothing else is indicated, and it is often used with good results, even where it is not best suited. When the selection of a filling material for any of the posterior teeth becomes a close question, it is generally well to be on the safe side and choose an amalgam. And where we find large cavities extending beyond the gingival line of the molars, amalgams are almost specific. Sometimes we find cavities so large that it is not advisable to place gold, and yet a crown is not indicated; in such cases, a well contoured amalgam may last for years. Some patients are too nervous to tolerate the blow of the mallet, which is generally used in placing a gold filling. Even though hand pressure is used, the polishing would be more than they would endure. In such cases it is often advisable to use an amalgam in preference to any other material. There are other cases where amalgam best preserves the teeth, but those mentioned are the most important.

There are other materials which are useful in the preservation of oral prophylaxis, but since they are of minor importance they will not be mentioned at this time.

Gold is certainly the most perfect filling material we have, but like all the rest, must be indicated before perfect results can be obtained. When indicated, if it is manipulated by a competent operator, we have a filling which has no superior; of course the color is not desirable in the anterior teeth, but that point is not to be considered in this paper, since we are now only discussing "the selection of filling material for oral prophylaxis." Whenever it is possible to do so, all of the posterior teeth should be filled with gold, and since I am so sure of this, I will add that every man should decide whether he can properly place a gold filling in a certain cavity or not, and if he is sure he can, let him do so, for if properly inserted, the chances are that it will be the very best for the preservation of the tooth.





**New Jersey State Dental Society, Thirty-sixth Annual Meeting.**  
**Discussion on Dr. Burkhart's Paper.**

**Dr. Chase.** The essayist has suggested procedures in the making of bridges that are to a great extent well known, but must be proved. Too great care can not be taken in performing any dental operation in the mouth. Any person who has not used the Steele facings, upon once using them will never, I believe, use anything else. The use of Evans gutta-percha in the cementing of bridges is undoubtedly a good thing, as many others know who have tried it. The essayist has not gone into any general discussion of the different methods of making bridges, realizing probably that each and every practitioner has his own pet hobby in that line.

I do not see anything to criticize in the paper and must commend it for its simplicity and directness and general good results that will be obtained in following out the principles.

**Dr. Halsey.** I derived a great deal of pleasure in listening to the Doctor's paper, and while I am not such a really young practitioner, yet I thought his warning was very kindly. The young man comes out of the college with some little experience and constructs a bridge which he thinks is pretty good, but after ten years he sees that bridge and he has changed his mind, and I believe that the young practitioner can learn a salutary lesson from a man with a great deal of experience in the matter of constructing and fitting bridges.

In regard to the removable facings I had a rather disastrous experience with the Mason facings, in their breaking. I have used a few Steele facings, and in a year's use they have proved satisfactory. I feel a little



## SOCIETY DISCUSSIONS

bit like sounding a warning in regard to the too free use of the removable facings until they have been demonstrated to be absolutely perfect. Our profession seems to be very ambitious; we take up all these new things, sometimes with rather disastrous results. Personally I believe in being up to date, but the more I practice the more I become conservative in adopting new things. I want to know they are thoroughly proved to be what they are sold for, and I say to the younger practitioner, be careful of some of these things, as it may save future trouble.

I have been very much interested in listening to  
**Dr. Farlan.** Dr. Burkhardt's paper, for it touches on subjects that

I have been dealing with for some time, and more especially so with reference to the Mason facings. The Steele facings I have not taken up, but the Mason I have had considerable experience with. The gentleman from Springfield (Dr. Halsey) spoke of having disastrous results as I understood from breakage; I have been very fortunate in that respect, and I think the majority of the trouble in bridge work is caused by faulty articulation.

The Evans gutta-percha cement has been valuable to us all. There have been a great many cases where it has been necessary for me to remove bridges. I do not believe in devitalizing a tooth in this work unless it is really necessary, and consequently I will set a shell crown even if the tooth be sensitive.

I thank you for the short discussion we have  
**Dr. Burkhardt.** had, for it has brought out some few little things.

There was one thing I omitted to mention and which I believe is of a good deal of importance. I will say to the doctor from Massachusetts that in cementation we can hardly expect at the hands of humanity absolute perfection in any one thing, but it is only the mechanical principle as it presents itself that we must thoroughly study to make the best of the products that come to us; consequently, while we all have had misfortunes, yet they are reduced to a minimum as compared with other business.

With regard to gutta-percha I will give you an illustration in the setting of the bridge. Suppose you were to set a bridge with four abutments, using the gutta-percha: do not place it around the pin of the Richmond crown on your first trial; first use a little cement in the cap itself so that none is forced into the root canal, or the hole where the pin is to be inserted. Of course you make your regular trial of the gutta-percha in your shell crown, but leave over the hole in the tooth where the pin is to enter the gutta-percha as the last thing to be inserted. Having done this do not be afraid you are going to burn your patient's mouth, or going to fall short in getting a union between the gutta-percha in the



## ITEMS OF INTEREST

tooth and that remaining in the little cap. A sufficient quantity being in each of these little caps, now insert it in the hole, fill it about two-thirds, carefully place your bridge, and if you have kept it perfectly dry on these two cusps the result will be that the gutta-percha in the hole will thoroughly unite with the other and you will get thorough cementation.

I have been asked how I get a bridge off. That is very easily done with the apparatus that comes with the gutta-percha furnished by Dr. Evans. Dr. Webster, of Toronto, told me that he gets better results by using a hot air syringe and forcing it on each of the cusps rapidly. That I have never tried, but I can see from a mechanical standpoint it may be excellent.

If some of you gentlemen who have never tried the method of preparing an abutment under the rubber dam should once attempt it, you will certainly get results which will justify you in following that course thereafter, especially in large molars—and when you do that use clamps that have a wide flange. So with the other methods I have outlined, if you try them I think you will always use them.







**The Situation in Relation to Army  
and Navy Legislation.**  
**An Appeal for United Effort to Pass the Bill.**

A crisis has arrived in connection with the passage of a Bill creating an Army Dental Corps, in which the united efforts of all interested would probably result in success. But the combined effort should be made immediately, as every day brings the present short session of Congress nearer to a close.

**The Present  
Status.**

That the friends of the undertaking may co-operate intelligently, a brief statement as to the present legislative status must be carefully studied as a guide to action.

During the last session a Bill known as Senate Bill 2355 was passed by the Senate. It is unnecessary at this time to discuss the details of this act. It is probably not entirely satisfactory to any one. The two facts of sole importance just now, are: First, Senate Bill 2355 creates an officered dental corps. Second, Senate Bill 2355 has passed the United States Senate.



## ITEMS OF INTEREST

### **The Bill in the House.**

This same Bill was then referred to the House Committee on Military Affairs, by them duly considered, and reported back to the House with several amendments, and is now on the calendar. There are obstacles in the path of the Bill, not the least of which is the brevity of the present session and the multitude of bills of all kinds which are necessarily being pressed for passage. It is for this reason that an urgent and immediate appeal from dentists to congressmen is essential. Our congressmen are our representatives, and will always act for us, if we speak loudly enough and make clear just what it is that we desire. A divided profession at this time would be sufficient excuse for congressmen to give their time and attention to other bills. A spontaneous appeal to congressmen from all parts of the country would give just the impetus to the movement which would spell success.

Will the dentists of this country, will you, who read this, turn aside from your daily work long enough to write a letter to your congressman, thus aiding the effort to elevate the dentists in the army from the status of contract men to that of officered rank? If so, the letters should be written within twenty-four hours.

### **The House Amendments.**

The fact that the House Committee reported the Bill with several amendments seriously jeopardizes the measure. If these amendments should be passed with the Bill when it comes to a vote in the House, it would then be necessary to refer the two bills to a conference committee of the Senate and House, in which event it is more than probable that an agreement might not be obtained before the close of the present Congress, and then the work must start all over. For this reason the effort to be made must be to have the Bill passed by the House *without the amendments made in the Committee*; or, in other words, congressmen should be urged to vote for Senate Bill 2355 *exactly as it passed the Senate, and without any amendments*.

### **Action by The Council of the D. D. A.**

The National Dental Association having given the Council supervision of Army and Navy legislation, a conference was called and held recently at Washington, at which the entire situation and the various bills pending were carefully discussed, with the final





conclusion that a united effort should be made for the passage of Senate Bill 2355 *as it came from the Senate*. A Committee on Legislation was appointed, with Dr. B. Holly Smith as chairman, and this committee was instructed to work for the passage of the Senate Bill as the shortest road to success, thus avoiding delay through the necessity of conference.

Now if the profession at large will take the same view, we may consider ourselves a "committee of the whole," working harmoniously for the creation of an officered Army Dental Corps during the present Congress.

### **A Personal Appeal.**

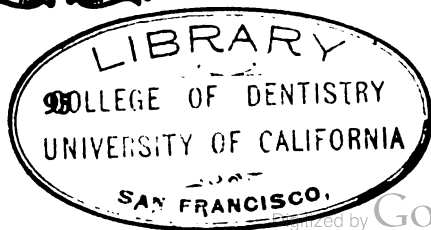
Having been appointed a member of the National Dental Association Committee on Army and Navy Legislation, and with the consent of the chairman, Dr. B. Holly Smith, to use the pages of *ITEMS OF INTEREST* in obtaining individual effort to the end that the Army Dental Corps may be finally created during the present term of Congress, I make this personal appeal.

I ask every man in the dental profession, and especially every man who has led me to believe that he is my friend, to unite with the committee by writing at least to one congressman. And it is important that the letter should be couched in practically the following language:

"You are respectfully requested to aid in the passage of the Bill known as Senate Bill 2355, which Bill is now on the calendar of the House for passage, and you are respectfully urged to endeavor to have this Bill passed, *exactly as it was passed in the Senate*, or with the least modification possible, in order to avoid endangering its final enactment by reference to a conference."

Those who have personal acquaintances or friends in Congress will please write to them immediately, and I would esteem it a favor if reports of all letters and replies should be forwarded to me, for the information of the committee.

R. OTTOLENGUI.



Jan.





## **A Public Dental Library in the City of Columbus, Ohio.**

Editor of ITEMS OF INTEREST:—

The Trustees of the new Columbus Carnegie Library Building, a handsome structure costing \$250,000, have set apart a room 40 by 60 feet for the exclusive use of a Dental and Medical Library.

Columbus, being centrally located and of easy access to the majority of the dentists in the State, should be the home of what the dental profession has hitherto been without—a library complete in all the literature of the profession, making it invaluable for research and reference.

The local dentists have organized a Dental Library Association for the express purpose of bringing this matter to a successful issue, and the work thus far accomplished far exceeds our expectations. The Columbus dentists alone have donated \$500 in cash and a number of books and magazines.

To make this library complete in embracing all known works pertaining to our specialty and complete files of all the journals published, we desire the co-operation of every dentist in the State. Any old and rare works, copies of old journals, etc., will be gratefully received, inscribed with the name of the donor, and recorded to his credit in the library catalogue. Please communicate with us concerning any literature you may have that you can donate to this cause, giving titles and authors of books, names and dates of journals, etc. In case of duplication they will be valuable for exchange with other libraries.

DR. EDWARD C. MILLS, Secy.,  
10 Y. M. C. A. Building.

DR. W. H. TODD, Pres.,  
190 S. High St., Columbus.





## Requirements for Licenses and Dates of Examinations.

Secretaries of State Boards are requested to keep us constantly posted in regard to dates and places of examinations or changes in their laws that this department may be kept up to date.

**Alabama.** Examination required, with or without diploma. Examination fee \$10. No special examination granted to practitioners already in practice. No interchange of license with any States. Examinations annually on the Monday before the second Tuesday in May of each year. Secretary, Dr. Thomas P. Whitby, Selma, Ala.

**Arizona.** Examination fee \$25. Secretary, Dr. W. P. Sims, Bisbee, Ariz.

**Arkansas.** Examination with or without diploma; applicants must attain an average of 75 per cent to pass. Examination fee \$5. Examination, May 7 and 8. No special examination granted to practitioners already in practice; no temporary licenses. Oklahoma reports interchange with Arkansas, but the secretary of Arkansas reports no interchange as yet. Secretary, A. T. McMillan, Fifth and Main streets, Little Rock, Ark.

**California.** Examination required with or without diploma. Examination fee \$25. No special examination granted to practitioners already in practice. No interchange of license with any States. In the even years the summer examination will be held in San Francisco, beginning the second Monday in June, followed by an examination in Los Angeles the third Monday in June. In the odd years the summer examination will be held in Los



## ITEMS OF INTEREST

Angeles beginning the second Monday in June, followed by one in San Francisco beginning the third Monday in June. The winter examination will be held in San Francisco beginning on the second Thursday of December of each year. Secretary, C. A. Herrick, Jackson, Amador Co., Cal.

**Colorado.** Examination granted to holders of diploma only. Examination fee \$10. No special examination granted to practitioners already in practice.

No interchange of license with any States. Examinations first Tuesdays of June and December, at Denver. Secretary, Dr. M. S. Fraser, 407 Mack Building, Denver, Colo.

**Connecticut.** Applicant for examination must have diploma, or must have had five years' instruction from a licensed dentist, or three years' practice as a legally qualified dentist. Examination fee \$25. A special clause permits reciprocal interchange of licenses in accordance with the Asheville resolution. Recorder, G. M. Gilbert, 783 Main street, Hartford, Conn.

**Delaware.** Examination and diploma required in all cases. Examination fee \$10; \$1 for certificate. All applicants for certificates come under the same conditions. No interchange of license with any other States. Examinations first Wednesdays in January, April, July and October. Place of meeting given when applicant writes for the information. Secretary, C. R. Jefferis, New Century Bldg., Wilmington, Del.

**District of Columbia.** Examination with or without diploma. Examination fee \$10. Reciprocal interchange of license with the State of New Jersey in accordance with the provisions of the Asheville resolution. Secretary, Dr. S. G. Davis, 607 13th street, Washington, D. C.

**Florida.** Examination required with diploma. Examination fee \$10. No special examination for practitioners already in practice. Secretary W. G. Mason, Tampa, Fla.

**Idaho.** Examination required with or without diploma. Examination fee \$25. No special examination granted to practitioners already in practice. No interchange of license with any State. Secretary, C. E. M. Loux, Pocatello, Idaho.

**Illinois.** Examination required with or without a diploma. Examination fee \$20. License fee \$5. No special examination required for practitioners already in practice. No interchange of license with any other State. Ex-



## ITEMS OF INTEREST

aminations twice each year, usually in May and October. Secretary, Dr. J. G. Reid, 67 Wabash avenue, Chicago, Ill.

**Indiana.** Applicants for examination must possess diploma from recognized college or must have had five years' dental practice under a reputable practitioner of this State. Examination fee \$20. No special examination granted to practitioners already in practice. Reciprocal interchange of license with the State of New Jersey in accordance with the provisions of the Asheville resolution. Secretary, Dr. F. R. Henshaw, Middletown, Ind.

**Iowa.** Examination required with diploma. Examination fee \$20. No special examination granted to practitioners already in practice. No interchange of license with any States. Secretary, Dr. E. D. Brower, Le Mars, Ia.

**Kansas.** No examination required if applicant has a diploma from a reputable college; otherwise examination required. Examination fee \$10. No special examination granted to practitioners already in practice. No interchange of license with any States. Secretary, Dr. M. I. Hults, Hutchinson, Kan.

**Kentucky.** Examination required with diploma. Examination fee \$20. No special examination granted to practitioners already in practice. No interchange of license with any States. Examinations first Tuesday in June and December in Louisville. Secretary, Dr. C. R. Shacklette, 628 Fourth avenue, Louisville, Ky.

**Louisiana.** Examination required with diploma. Examination fee \$25, payable in advance. No special examination granted to practitioners already in practice. No interchange of license with any States—Board has the matter under consideration. Examinations twice annually in New Orleans, first examination on the day following the commencement exercises of the New Orleans College of Dentistry. Second examination occurs on the first Tuesday after the third Monday in October. Secretary, treasurer and attorney, L. A. Hubert, 137 Corondelet street, New Orleans, La.

**Maine.** Examination required with or without diploma. Examination fee \$20. No special examination granted to practitioners already in practice. No interchange of license with any States. Secretary, Dr. Dana W. Fellows, Portland, Me.

**Maryland.** Examination required with diploma. Examination fee \$10. No special examination granted to practitioners already in practice. No interchange



## ITEMS OF INTEREST

of license with any State. Examinations occur twice annually in Baltimore. Secretary, F. F. Drew, 701 N. Howard street, Baltimore, Md.

**Massachusetts.** Examination required with or without diploma. Examination fee \$20 for first examination, subsequent examinations \$5. No special examination granted to practitioners already in practice. No interchange of license with any States. Hereafter candidates for second and subsequent examinations will be required to fill out an application blank and forward it to the secretary as above. Every candidate for examination must be twenty-one years of age. Application blanks may be obtained from the secretary. Temporary licenses are never granted. The fee for third and subsequent examination is \$5.00. Secretary, Dr. G. E. Mitchell, Haverhill, Mass.

**Michigan.** Examination required with or without diploma. Examination fee \$10. Practitioners already in practice may have a special examination before any member of the Board which will enable him to practice until the next regular meeting of the Board, when a regular examination must be taken. Reciprocal interchange of license with New Jersey in accordance with the provisions of the Asheville resolution, and with the Canadian Northwest Territories. Secretary, Dr. C. H. Oakman, 29 State street, Detroit, Mich.

**Minnesota.** Diploma must be presented from a dental college in good standing or satisfactory evidence must be given of having been engaged in the practice of dentistry as early as April, 1879. Examination fee \$10. No special examination granted to practitioners already in practice, and the Board has no power to grant temporary license of any kind. No interchange of license with any States. Examinations first Tuesday in April and October. Held at Dental Department of the State University at Minneapolis. Secretary, C. H. Robinson, Wabash, Minn.

**Mississippi.** Examination required with or without diploma. Examination fee \$10. Practitioners already in practice will be granted an examination by any member of the Board, who is authorized to issue a temporary license which will be valid until the next succeeding meeting of the Board. Only one temporary license shall ever be issued to the same applicant. Examinations third Tuesday in May of each year. Secretary, Dr. P. P. Walker, Brandon, Miss.

**Missouri.** Examination with or without diploma. Examination fee \$25. No special examination granted to practitioners already in practice. No interchange of license with any States. Secretary, S. C. A. Rubey, Clinton, Mo.



## ITEMS OF INTEREST

**Montana.** Examination with or without diploma. Examination fee \$25. No special examination granted to practitioners already in practice. No interchange of license with any States. Secretary, D. J. Wait, Helena, Mont.

**Nebraska.** Examination required with or without diploma. Examination fee \$25, except to Nebraska graduates fee is \$10. No special examination granted to practitioners already in practice. No interchange of license with any States. C. F. Ladd, Lincoln, Neb.

**Nevada.** Examination required of all graduates. Examination fee \$25. No special examination granted to practitioners already in practice. No interchange of license with any States. Secretary, C. A. Coffin, Reno, Nev.

**New Hampshire.** Examination required with or without diploma. Examination fee \$10. No special examination granted to practitioners already in practice except by agreement of the full Board. No interchange of license with any States. Secretary, A. J. Sawyer, Manchester, N. H.

**New Jersey.** Applicant must be a graduate of a reputable dental college and hold a high school diploma or a certificate from the State superintendent of public instruction, Professor Baxter, Trenton, N. J. Examination fee, \$25. Reciprocal interchange of license with Utah, Tennessee, Indiana, Michigan and Vermont, in accordance with the provisions of the Asheville resolution, and by special agreement with New York. Theoretical branches in the Assembly Chamber, Trenton, N. J. Practical operative work at the office of C. S. Stockton, 7 Central avenue, Newark, on a date assigned by him. Practical prosthetic work at the office of Dr. A. Irwin, 425 Cooper street, Camden, N. J., on a date assigned by him. Secretary, Dr. Charles A. Meeker, 29 Fulton street, Newark, N. J.

**New Mexico.** Examination required with or without diploma. Examination fee \$25. Fee for certificate \$5. All licensed dentists within the Territory shall, on or before the first day of June of each year register with the secretary of the board, and shall pay therefor an annual fee of \$3. No special examination granted to practitioners already in practice. No interchange of license with any States. Secretary, C. N. Lord, Santa Fe, N. M.

**New York.** Diploma from a registered school is necessary for admission to the dental licensing examination. Applicants who have had six years' practice in dentistry may on unanimous recommendation of the Board receive a license to practice in this State provided they meet the necessary professional



## ITEMS OF INTEREST

and preliminary requirements. Examination fee \$25. Reciprocal interchange of license with New Jersey and Pennsylvania. Next examination January 29-February 1, 1907. Chief, Charles F. Wheelock. Examinations Division, New York State Education Department, Albany, N. Y.

**Examination with or without diploma.**  
**North Carolina.** Examination fee \$10. No special examination granted to practitioners already in practice. Secretary, R. H. Jones, Winston-Salem, N. C.

**Examination required with or without diploma.**  
**North Dakota.** Examination fee \$10; additional fee for license, \$5. No special examination granted to practitioners already in practice. No interchange of license with any States. Examination, second Tuesday in July. Secretary, H. L. Starling, Fargo, N. D.

**The Board will register without examination**  
**Ohio.** all graduates of the Ohio colleges who made proper application and paid the required fee of \$10 prior to the June, 1905, session of the Board; all other applications must be graduates and pass examination before they can practice legally in Ohio. Examination fee \$20; registration fee \$10. There is an exemption clause which permits the Board to register a person who has been in practice in the State of Ohio continuously since January 1, 1903; this must be verified by evidence. Application should be filed with the secretary ten days prior to examination. Secretary, H. C. Brown, 185 East State street, Columbus, Ohio.

**Examination required with or without diploma.**  
**Oklahoma.** Examination fee \$25. No special examination granted to practitioners already in practice. Reciprocal interchange of license with Arkansas. Secretary, A. C. Hixon, Guthrie, Okla.

**Examination required with diploma.**  
**Oregon.** Examination fee \$10. No special examination granted to practitioners already in practice. No interchange of license with any States. Examination in November in Portland. Secretary, J. D. Ireland, 614 Dekum Building, Portland, Ore.

**Examination required with diploma.**  
**Pennsylvania.** Examination fee \$15. No special examination granted to practitioners already in practice. Reciprocal interchange of license with New York. Secretary C. N. Schaeffer, Harrisburg, Pa.

**Examination in all cases.**  
**Rhode Island.** Examination fee \$20. No special examination granted to practitioners already in practice. In regard to interchange the



## ITEMS OF INTEREST

Board has recommended an amendment to the law giving the board discretion. Secretary, W. S. Kenyon, 301 Westminster street, Providence, R. I.

**South Carolina.** Examination with diploma. Examination fee \$15. No special examination granted to practitioners already in practice. No interchange of license with any States, but is not opposed to a satisfactory plan of exchange. Secretary, Dr. B. Rutledge, Florence, S. C.

**South Dakota.** Applicants for examination must have diploma or must have had three years' practice immediately preceding examination. Examination fee \$10; license fee \$5. No special examination granted to practitioners already in practice. No interchange of license with any State. Secretary, G. W. Collins, Vermillion, S. D.

**Tennessee.** Registers diploma without examination and examines all others. Examination fee \$5. No special examination granted to practitioners already in practice. Reciprocal interchange of license with New Jersey, in accordance with the provision of the Asheville resolution. Secretary, F. A. Shotwell, Rogersville, Tenn.

**Texas.** Examination required in all cases. Examination fee \$25. Temporary licenses granted to holders of diplomas between meetings of the Board; good until the following meeting. Temporary licenses granted to others after an examination by any member of the Board. Good until the next meeting of the Board. Fee for temporary license \$2. Secretary, C. C. Weaver, Hillsboro, Texas.

**Utah.** Examination required with or without diploma. Examination fee \$25. No special examinations granted to practitioners already in practice. Reciprocal interchange of license with New Jersey in accordance with the provisions of the Asheville resolution. Examination not yet fixed. Usually April and October. Secretary, H. W. Davis, 511-513 McCormick Block, Salt Lake City, Utah.

**Vermont.** Examination required in all cases. Examination fee \$25. No special examination granted to practitioners already in practice. Board is empowered to make interchange of license, in accordance with the Asheville resolution. Interchanges with New Jersey. Secretary, G. F. Cheney, St. Johnsbury, Vt.



## ITEMS OF INTEREST

**Virginia.** Examinations required with or without diploma. Examination fee \$10. No special examination granted to practitioners already in practice. No interchange of license with any State. Secretary, R. H. Walker, Norfolk, Va.

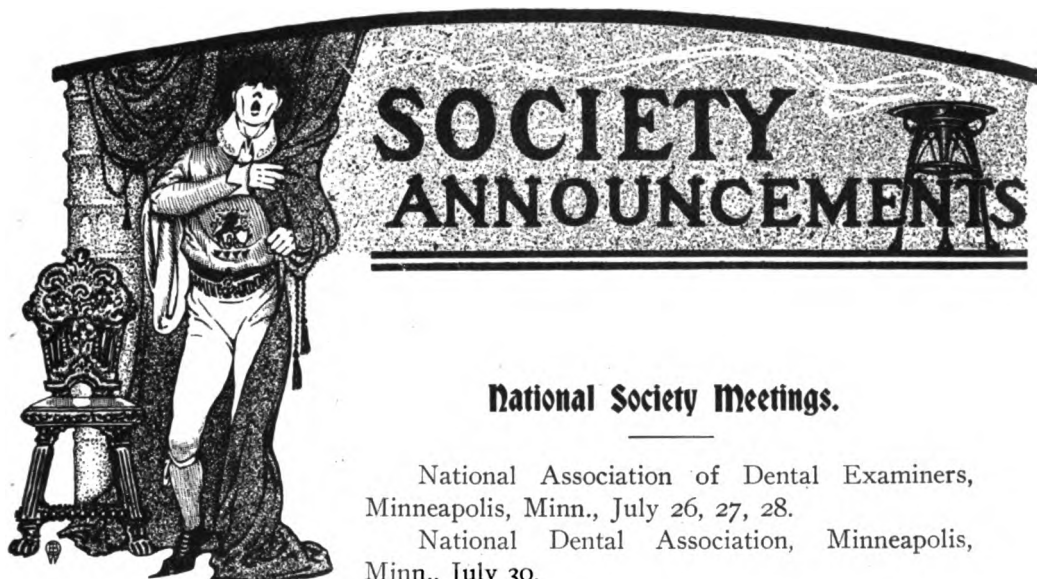
**Washington.** Examination required with diploma. Examination fee \$25. No special examination granted to practitioners already in practice. No interchange of license with any States. Examinations in May and November. Secretary, C. S. Irwin, Vancouver, Wash.

**West Virginia.** Examination required with or without diploma. Examination fee \$10. No special examination granted to practitioners already in practice. No interchange of license with any State. Application blanks and all necessary information furnished by the secretary. Secretary, H. M. Van Voorhis, Morgantown, W. Va.

**Wisconsin.** Examination required with diploma. Examination fee \$10. Dentists who have practised for four years or have been apprenticed to a reputable dentist for five years are entitled to examinations. No special examination granted to practitioners already in practice. No interchange of license with any State. Secretary, J. J. Wright, 1218 Welles Building, Milwaukee, Wis.







### **National Society Meetings.**

National Association of Dental Examiners,  
Minneapolis, Minn., July 26, 27, 28.

National Dental Association, Minneapolis,  
Minn., July 30.

### **State Society Meetings.**

Alabama Dental Association, Birmingham, May 14, 15, 16, 17.

Arkansas State Dental Association, Eureka Springs, May 29, 30, 31.

California State Dental Association, San Francisco, January 2, 3, 4.

Connecticut State Dental Association, New London, April 16, 17.

Georgia State Dental Society, Atlanta, May 7, 8, 9, 10.

Illinois State Dental Society, Quincy, May 14, 15, 16, 17.

Maine Dental Society, July 16.

Minnesota State Dental Association, Minneapolis, July 30, Aug. 3.

Montana State Dental Society, Helena, April 12, 13.

Nebraska State Dental Society, Lincoln, May 21, 22, 23.

New Jersey State Dental Society, Asbury Park, July 17, 18, 19.

New York State Dental Society, Albany, May 10, 11.

South Carolina State Dental Association, Anderson.

Vermont State Dental Society, Burlington, May 15.

Virginia State Dental Association, Jamestown, Sept. 10, 11, 12.

Wisconsin State Dental Society, La Crosse, July 16, 17, 18.





## Jamestown Dental Convention.

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The Jamestown Dental Convention, to be held under the auspices of the Jamestown Exposition Company, the southern branch of the N. D. A., and the Virginia State Dental Association, will convene at Norfolk, Va., September 10 to 12, 1907. The Jamestown Exposition Company have appointed the following gentlemen a Committee on Organization, to elect officers in advance of the meeting, to appoint all committees, to finance the meeting, to bring it to a successful termination: Drs. Burton Lee Thorpe, chairman, St. Louis, Mo.; H. Wood Campbell, secretary, Suffolk, Va.; F. W. Stiff, treasurer, Richmond, Va.; R. H. Walker, Norfolk, Va.; Thos. P. Hinman, Atlanta, Ga.; J. E. Chace, Ocala, Fla.; and Clarence J. Grieves, Baltimore, Md. The Committee on Organization have appointed Dr. Clarence J. Grieves, of Baltimore, Md., General Chairman of the Clinic Committee and Supervisor of Clinics. A number of well-known men will assist him on the General Committee. State clinic chairmen have been selected from every State in the Union. The clinics are to be the principal features of the convention. It is expected to bring about the largest and most instructive dental clinic ever held. A Surgical Clinic will also be held under the supervision of Dr. L. M. Cowardin, of Richmond, Va. The other members of this committee are: J. Y. Crawford, Nashville, Tenn., and A. G. Fredericks, New Orleans, La. Dr. F. W. Stiff, of Richmond, is General Chairman of the Membership Committee. Assistant State chairmen have been appointed from every State in the Union. Already membership fees are being sent in, and the promise is for the largest gathering of dentists ever held. Only five essays will be read at the convention, one by Prof. W. D. Miller, another by G. V. Black, and the other three by well-known dentists. Several exhibits of much interest to the profession will be held under the auspices of the convention, among them the Dental Manufacture exhibit, in charge of Dr. John W. Manning, Chairman, of Norfolk, Va.; a Comparative Anatomy exhibit, in charge of Dr. W. M. Bebb, Chairman, of Los Angeles, Cal. This exhibit will consist of 3,000 comparative anatomy specimens. To these will be added numerous other collections of interest: a Dental Historical exhibit, consisting of ancient instruments, operative and prosthetic work, books and photographs, under the chairmanship of Dr. Wm. H. Trueman, of Philadelphia, Pa.; the Orthodontia exhibit, showing a large collection of models, etc., under the chairmanship of Dr. H. E. Kelsey, of Baltimore, Md.; the United States Naval Dental exhibit, showing 3,000 charts of the mouths of midshipmen, under the chairmanship of Dr. Richard Grady, the United States Naval dental surgeon, of Annapolis, Md. The exhibit of



## SOCIETY ANNOUNCEMENTS

the United States Army Dental Corps, under the chairmanship of Dr. John S. Marshall, of San Francisco, Cal., will show the equipment, method of keeping records, etc., used by the Dental Corps. A full list of the various officers, who are to be elected in advance by the Committee on Organization, at their next meeting in February, 1907, and of the committee, will appear in due time in the various dental journals. The Committee of Organization is expected to select officers in advance, in order that the officers may be prepared for their duties before the actual convening of the convention. A cordial invitation is extended to all reputable members of the profession to become members of this convention, and to assist the Committee of Organization in bringing about one of the best, if not the best, dental meetings ever held. The Exposition itself offers an excellent opportunity for the busy practitioner to take a delightful vacation, see the wonderful historical, naval, and military exhibit at the Exposition, and also to participate in this meeting. The membership fee, which is \$5.00, should be sent to Dr. F. W. Stiff, treasurer, 600 East Grace Street, Richmond, Va.

For further information address H. W. Campbell, Secretary, Suffolk, Va.

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### **National Association of Dental Examiners.**

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At the last meeting of the National Association of Dental Examiners the following officers and committees were elected for the ensuing year:

President—George E. Mitchell, D.D.S., Haverhill, Mass.

Secretary and Treasurer—Charles A. Meeker, D.D.S., 29 Fulton St., Newark, N. J.

Vice-Presidents—From the West: F. O. Hetrick, D.D.S., Ottawa, Kansas. From the South: F. A. Shotwell, D.D.S., Rogersville, Tenn. From the East: H. J. McFadden, D.D.S., Philadelphia, Pa.

Committee on Colleges—J. G. Reid, D.D.S., Chairman, 1204 Trude Bldg., Chicago, Ill.; J. J. Wright, D.D.S., Milwaukee, Wis.; J. F. Dowsley, D.D.S., Boston, Mass.

Committee on Joint Conference of the N. A. D. E. and N. A. D. F.—F. O. Hetrick, D.D.S., Ottawa, Kansas, Chairman, N. A. D. Examiners; Charles A. Meeker, D.D.S., Newark, N. J.; J. A. Hall, D.D.S., Collinsville, Alabama.

M. W. Foster, D.D.S., Baltimore, Chairman, N. A. D. Faculties; M. C. Marshall, D.D.S., St. Louis, Mo.; H. E. Friesell, D.D.S., Pittsburg, Pa.



## ITEMS OF INTEREST

Credential and Membership Committee—W. G. Mason, D.D.S., Tampa, Fla., Chairman; W. G. Rambo, D.D.S., Marietta, Ga.; H. W. Campbell, D.D.S., Suffolk, Va.

State Advisory Committee—C. R. Shacklette, D.D.S., Kentucky, Chairman; Brooks Rutledge, D.D.S., Florence, S. C.; T. P. Whitby, D.D.S., Selma, Ala.; H. S. Sutphen, D.D.S., Newark, N. J.; C. H. Oakman, D.D.S., Detroit, Mich.

Committee on Promoting Relations with Foreign Examiners—T. J. Barrett, D.D.S., Chairman, Worcester, Mass.; J. K. Douglas, D.D.S., Sandusky, Ohio; R. H. Walker, D.D.S., Norfolk, Va.

Committee on Resolutions—H. B. Purl, D.D.S., Kirksville, Missouri, Chairman; H. G. Brown, D.D.S., Columbus, Ohio; R. H. Walker, D.D.S., Norfolk, Va.

Committee on Tabulation of Examiners' Reports of Examinations—A. Irwin, D.D.S., Camden, N. J., Chairman; F. A. Shotwell, D.D.S., Rogersville, Tenn.; C. F. Ladd, D.D.S., Lincoln, Nebraska.

Committee on Publication—J. E. Chace, D.D.S., Ocala, Fla., Chairman; J. K. Douglas, D.D.S., Sandusky, Ohio; E. D. Brower, D.D.S., Le Mars, Iowa.

Committee for Promoting a System of Credits and Uniformity of Examinations—T. E. Turner, D.D.S., St. Louis, Mo., Chairman; F. R. Henshaw, D.D.S., Middletown, Ind.; J. J. Wright, D.D.S., Madison, Wis.

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### Ontario Dental Society.

The Eighteenth Annual Meeting of the Ontario Dental Society will be held in the College Building, Toronto, Ontario, February 25, 26, and 27, 1907.

A. E. WEBSTER,  
Toronto, Ont.

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### Southern Nebraska Dental Society.

The second meeting of the Southern Nebraska Dental Society was held in Superior, November 13 and 14, in Dr. J. Frank Nelson's office, with a good attendance and fine program. Several clinics were given which were away above the average; also papers by Dr. J. M. Prime, of Oxford, Dr. N. H. Morrison, and Dr. Q. R. Thomas, of Red Cloud. The next meeting will be held in Superior, in January.

W. R. McHENRY, Sec'y.





## **New Jersey State Dental Association.**

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The New Jersey State Dental Society will convene in the Auditorium, Asbury Park, N. J., beginning Wednesday, July 17, and continue 18 and 19.

The exhibitors will please communicate with Dr. Walter Woolsey, Elizabeth, N. J. Clinicians communicate with Dr. Charles H. Dilts, Trenton, N. J. Essayists communicate with Dr. W. A. Jaquette, Salem, N. J.

CHARLES A. MEEKER, Secretary,  
29 Fulton Street, Newark, N. J.

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## **Detroit Dental Society.**

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The members and friends of the Detroit Dental Society will hold their annual Midwinter Clinic and Banquet on February 16, 1907, at Detroit, Mich.

The program is now being arranged by the Clinic and Banquet Committees, and the aim will be to have both the Operative and Table Clinics of a very high standard.

As this is the largest meeting of this character occurring in this State during the winter months, we extend a most cordial invitation to all members of the profession in the United States and Canada.

For any further information apply to

GEORGE F. BURKE, Secretary,  
315-317 Stevens Bldg., Detroit, Mich.

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## **Ohio State Dental Society.**

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At the Forty-first Annual Meeting of the Ohio State Dental Society, held in Columbus, December 4, 5, and 6, 1906, the following officers were elected: President, Dr. H. C. Brown, Columbus; First Vice-President, Dr. C. I. Keely; Second Vice-President, Dr. W. H. Whitslar; Treasurer, Dr. Weston A. Price; Board of Directors for three years, Drs. W. H. Todd, A. O. Ross, W. A. Barber, H. T. Smith.

F. R. CHAPMAN, Secretary,  
305 Schultz Bldg., Columbus, O.





### **American Dental Society of Europe.**

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The American Dental Society of Europe will hold its next annual meeting in Rome, Italy, at Easter, 1907. A very cordial invitation is extended to members of the profession to be present. As it is the first meeting of the Society in the "Eternal City," it is hoped it may be the most enjoyable one in its history.

J. W. GALE, Hon. Sec'y,  
79 Hohenzollern-Ring, Cologne (Rhine), Germany.

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### **Southern California Dental Association.**

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The Tenth Annual Session of Southern California Dental Association will be held in Los Angeles, May 6, 7, and 8, 1907; at the same time the Imperial Council of the Mystic Shrine meets here, and all members of the dental profession contemplating visiting Southern California at that time will confer a favor on the Association by notifying the Secretary.

CHAS. M. BENBROOK,  
455 So. Broadway, Los Angeles, Cal.

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### **The G. V. Black Dental Club Clinic.**

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The Annual Midwinter Clinic of The G. V. Black Dental Club will be held at the Old Capitol Building, in St. Paul, on Tuesday and Wednesday, February 26 and 27, 1907.

The Clinic Committee has prepared the best program possible for it to arrange. The Operative Clinic and the list of essayists speaks for itself.

The list of Table Clinicians has not been completed, but a special effort is being made to have upon it the names of many men who will give as interesting demonstrations as appear upon other portions of the program.

Correspondence with exhibitors leads us to the belief that that which is new will be displayed for those coming from a distance.

Those who are interested in progressive dentistry are most cordially invited to attend our meeting, and take part in the discussion of the clinics and the ideas which will be presented by the essayists.

Special railroad rates on all railroads.





As there will be other conventions held in St. Paul at the same time, it is suggested that arrangements be made in advance for rooms.

The Merchants' Hotel and the Ryan Hotel have made a special rate for those attending the meeting.

The Secretary will gladly reserve rooms for all writing him.

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### **Chicago College of Dental Surgery Alumni Association.**

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On January 16 and 17, 1907, the Alumni Association of the Chicago College of Dental Surgery will celebrate the twenty-fifth anniversary of the establishment of the College by holding a grand reunion and clinic. Arrangements have been made for a number of papers, a very extensive clinic, a theater party, and a banquet. A railroad rate of a fare and a third for the round trip from all points in the United States and Canada on the certificate plan has been arranged for.

A cordial invitation is extended to the general profession to be present, as well as all members of the Alumni Association and all graduates of the College.

R. C. BROPHY,  
J. P. BUCKLEY,  
Committee on Publicity.

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### **Iowa State Board of Dental Examiners.**

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The Iowa State Board of Dental Examiners will hold its next meeting for examination at Iowa City, February 6, 7, 8, 9, 1907.

Candidates will be furnished with proper blanks and such other information as is necessary upon application to the Secretary.

All applications must be filed with the Secretary five days prior to the date of examination.

Address all communications to

E. D. BROWER, D.D.S., Sec'y,  
Le Mars, Iowa.





### **South Dakota State Board of Dental Examiners.**

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The next examination of the South Dakota State Board of Dental Examiners will be held at Sioux Falls, S. D., January 29, 30, 31, 1907, beginning at 1.30 P. M. All candidates for examination must bring diploma from reputable dental colleges or affidavit of having been engaged in the practice of dentistry for at least three years immediately preceding said examination. Instruments and materials necessary to do all kinds of operative and prosthetic work will be needed at this examination. Vulcanizer and lathes will be furnished by the Board. All applications must positively be in the hands of the Secretary by January 22.

G. W. COLLINS, Secretary,  
Vermillion, S. D.

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### **Wisconsin State Board of Dental Examiners.**

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The next meeting of the Wisconsin State Board of Dental Examiners, for examination of candidates for license to practice dentistry in Wisconsin, will be held Monday, January 28, 1907, at the Hotel Pfister, Milwaukee, Wis.

Application must be made to the Secretary fifteen days before examination. The candidate must be a graduate of a reputable dental college, or have been engaged in the reputable practice of dentistry for four consecutive years, or an apprentice to a reputable dentist for five years.

For further particulars apply to

J. J. WRIGHT, Sec'y,  
1218 Wells Building, Milwaukee, Wis.

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### **California Board of Dental Examiners.**

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At the last examination held in Oakland, there were fifty-six applicants of whom thirty-three were successful. At the examination in Los Angeles which followed, there were forty-four applicants of whom twenty-five were successful.

The next examination will be held in Los Angeles beginning on the second Thursday in December, 1906.

C. A. HERRICK, D.D.S.  
Secretary Board of Dental Examiners.





### **The Arrival of the Fittest.**

#### **Dr. Wm. Taggart's Wonderful Gold Inlay Method.**

Let the chroniclers of dental events set down January 15, 1907, as one of the most important dates in the annals of our art. On the evening of that day, a large audience of prominent men from several States attended a meeting of the Odontological Society of New York eager to hear an essay by Dr. Wm. Taggart of Chicago. Eager, because while not half a dozen men really knew what was to occur, Dame Rumor had busily wagged her tongue, and anticipation ran high, but, as it proved, not so high as did realization.

In the afternoon of the same day, in the laboratory of Dr. M. L. Rhein, Dr. Taggart demonstrated his method before a very few, who had been asked to discuss the paper, and who, therefore, were admitted to this private clinic, that they might the more intelligently express an opinion when called upon during the evening. Those who were fortunate enough to be present, will long remember the occasion, and especially the moment when, for the first time before onlookers, Dr. Taggart made the cast, and produced a perfect gold inlay, of pure gold. There was a spontaneous outburst of applause, which, coming from so small a body of men, was most impressive. But it is not strange that they were impelled to this demonstration, for every man felt that he had seen an alchemist at work.



## ITEMS OF INTEREST

### **The Taggart Inlay.**

The Taggart inlay differs from all others in two essential particulars. It is made of pure gold, and no preliminary matrix is needed. Another departure from previous methods lies in the fact that neither impression of the cavity nor model is required, though in an extreme case such preliminary model may prove a convenience.

The Taggart method is as follows: A specially prepared wax is utilized. The exact formula for this wax has not as yet been given, but it is, in the main, a combination of wax and paraffine, which is refined by straining twice through a filtering paper. This precaution removes all foreign particles and renders the material absolutely meltable.

With this special wax the original model of the inlay is constructed. In plainer terms, Dr. Taggart fills the cavity with wax, making his wax conform exactly to the shape required of the finished gold inlay. Where occlusal surfaces are involved, the wax is forced into the cavity, and the patient told to close his mouth, thus assuring the proper "bite." All excess of wax is then carefully cut away, and the remainder carved into perfect occlusal and approximal contour and relation. The approximal surface is perfected by polishing with thin tape and vaseline. In a great degree the final success of the inlay depends upon the care and skill expended upon the wax, because, so accurate is Dr. Taggart's casting method, that the gold assumes precisely the form of the wax, be it good or bad.

When the wax inlay, so to speak, is perfected, a sprue former, a small bar of brass about the size of No. 16 wire, is attached at a convenient point to the wax, by slightly heating it. Thus the wax is made to adhere to one end of this sprue former, while the other end is set into a hole in the cover of his flask. The next step is the investment.

### **Method of Investing the Wax Inlay.**

The investment is made with Peck's investing material, though other finely ground investments will serve. The powder must be mixed so as to avoid bubbles.

It is consequently slowly sifted into the water until the proper consistence is obtained. The wax is covered with the investment very carefully, the tiniest spatula serving to carry just a little of the material to place at a time, after which it is coaxed all around the wax until the latter is completely hidden in a ball-like mass. This is then put aside for a moment to slightly set. The ring of the flask proper is then placed over this invested wax, which rests, be it remembered, on the sprue former which is set in the flask cover. The ring in place, more investment is poured in, thus filling the flask.

When the investment has sufficiently set, the flask is placed over a Bunsen flame for further drying and heating up, with the result that



the wax is melted, passing into the investment. Thus we have a disappearing model. The melting of the wax likewise enables the operator to remove the flask cover which brings with it the sprue former which had been attached to the wax; and the withdrawal of this bar leaves a hole leading down to the mold of the inlay which is now empty, the wax having been absorbed.

**Method of  
Casting the  
Taggart Inlay.**

The cover of the flask is also so fashioned that its removal leaves a cup-shaped depression in the investment at the center of which is the hole which leads to the mold. Thus a crucible is supplied into which the ingot of gold may be placed. The flask with this lump of gold is then placed into Dr. Taggart's casting apparatus, and the flame of an oxy-hydrogen blow-pipe turned directly upon the ingot, playing from above downward. The gold is watched until it is not merely melted, but actually boiling, at which temperature it is as fluid as water. At this precise moment a lever is pushed down which instantly accomplishes three things; the blow-pipe arm and flame is turned to one side; the flask is closed with a cover lined with asbestos; and finally thirty pounds of compressed air is brought against the molten mass, thus making the cast under this heavy pressure. The entire procedure, as above described, occupied Dr. Taggart, at his clinic, only twenty-nine minutes.

**The Perfect  
Result.**

The inlays resulting from this method are marvelous. The adaptation is so accurate that there is no doubt but that Dr. Taggart has found a means by which the shrinkage of the metal is entirely overcome. Of course the shrinkage of high grade metals is not great, but by this process alloyed golds and even base metals may be cast with equal accuracy.

A remarkable test of the possibilities of the method was a specimen shown at the meeting. This was a small gold plate having two clasps, the whole cast, in a single piece, of clasp-gold. Another admirable specimen was an inlay for four teeth accurately fitting the occlusal surfaces, carrying ten or twelve pins for retention, and perfectly restoring occlusal relations with the opposing jaw. All was made in a single casting.

Dr. Taggart's paper will be published in due season, when his method will be better described in his own language. This is but a brief report of an important meeting; "an occasion," to quote from one auditor, a very prominent practitioner, "more noteworthy than any since Barnum gave us the rubber dam." In brief, we merely wish to promptly notify our readers of what we have chosen to denominate the "Arrival of the Fittest," and to prophesy of the Taggart inlay that it will likewise prove to be the "survival of the fittest."





## A Plea for Purer Ethics in Dentistry.

BY KENNETH McDOUGALL, D.D.S., Brooklyn, N. Y.

"Sound knowledge, simple aims, mastered craft, vivid intentions, strong common sense and eternally true and wise meaning."

John Ruskin's list of the merits of Greek Art have been placed at the head of this short article as a sort of motto to draw attention to the fact that not alone in Greek Art, but along the lines of all good work in every department the same laws obtain. Sound knowledge and mastered craft in our own profession are indissolubly linked with vivid intention, simple aims, strong common sense and eternally true and wise meaning, and these last comprise in large part, if not altogether, the ethics of dentistry. It is no less true now than it always has been that ignorance is the foe of real success, yet a man may have mastered his craft and be blindly ignorant of the "rightness and oughtness," which goes along with it. From this we would agree that there should be a higher standard of excellence as to the principles at the foundation of the right regulation of conduct.

We have appliances and methods far in advance of our ethical code. The question of means for restraining or abolishing the so-called advertising dentist has taken up some of the time and attention of our societies of late and it is a question for discussion. If the profession as a body is concerned as to the welfare of the public in this matter, proper steps might be taken at once to notify and warn them of their danger. If, on the other hand, it has simply its own commercial interest at heart, the matter may safely rest with the laws that govern the survival of the fittest, and comfort may be found in the thought that time and a discriminating public will render a verdict that must satisfy all concerned.

A danger fully as great threatens us in the self advertiser. Pure ethics should bear the same relation or position to our profession that a health officer does to a large port, and should be the means of stamping out and obliterating self advertisement and charlatanism in their many disguises by a strict interpretation of the laws that should, but often fail to govern one of the most important branches of the science of dentistry.

The young practitioner looking down the narrow pathway of correct ethics perhaps does not see the prompt pecuniary rewards awaiting him that he so plainly discerns in the broad road of the advertiser, and just entering the portal of the profession, perhaps not thoroughly equipped with a share of this world's goods, fails to keep before him a high and true standard, resting satisfied with a success that is only



ephemeral. The ingenuity of the self advertiser in private practice is often marvelous, and his fertility of resource phenomenal. His existence is brought to the notice of the public by himself in ways that would do credit to the greatest press agent of the day. The work, the caution required in dodging the censure of his colleagues, takes time. Should this same energy be expended in scientific research, and in the shaping and broadening of his professional life, how much greater would be his chances for permanent success. The foundation so laid would be a lasting tribute to his normal sense with reference to himself and the public.

Closely allied to this evil and existing as a disintegrating force we find petty professional jealousies and a lack of confidence toward one another, arising often from the misinterpretation of the attitude of others toward ourselves. Happy is the man who has no time for such a state of mind.

The deans of our profession err, perhaps, in not laying sufficient stress on the desirableness of a closer tie to bind dentists together. We must work together for our own good; to do this we must agree upon ethical laws and act in harmony with them. This offers the best basis of union in societies and insures the most cordial relations, and in no way interferes with differences of opinion with regard to methods, nor with independent thought and judgment. Some one has said that "Highest among the ethical virtues are justice and righteousness." We need not challenge this statement, but assume it to be true. Our profession to-day suffers not a little from overcrowding, but more, possibly, from the intense greed as to the intrinsic rewards the practice of dentistry offers. It is difficult to connect the relative fee a man may charge for his professional services with the subject of ethics. The only apparent relation is that which conscience establishes, which is the guide and only dictator we have in the fulfilling of the laws laid down for us in the ethical code prescribed by colleges and State societies. "An honest quid pro quo" is a good motto here, and should be at the head of every man's ledger, to be the text of every outgoing bill.

The most thoughtful student of our ethical laws, finds that society with her powerful levers, her unwritten laws, plays a most important part in the elevating of that standard by which our profession must be kept purer.

The public will not be deceived by mere outside show of glittering generalities. It demands for its patients, at the hands of our dentists, the best and most thorough work, the latest methods, the best appliances with furnished appointments as to the office. But more, it requires that the dentist shall be a gentleman of reasonable mental caliber, and above all, and beyond all, a man of moral integrity.



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If there seems to be a platitudinous note in all this let us remember we have not too many good examples set before us and reiteration seems not out of place, and if there is a better way to set forth the importance of these truths by all means let us have it. There are bright and shining lights in our own profession as we all know and it is well to note the foundation on which they build. When we do see a young man proceeding with patience, and in a serene and contemplative spirit in pursuance of a lofty ideal, we watch his career with a feeling of appreciation and admiration. This true student of ethics you will observe makes deliberate but steady progress, impressing not only the profession but the public. His career is not meteoric, his entrance into the hall of fame is not abrupt. He has mastered his craft and holds a position rightly his, fairly earned, a glorious triumph.

A paper on professional status read by its author, Doctor J. E. Nyman, of Chicago, before the Connecticut State Society some time ago, is perhaps the most complete essay of its kind ever given to the profession.

Seeds of ethical culture, however, should be sown in the colleges. The young graduate should enter the arena teeming with enthusiasm for higher standards, but how often to-day is this the case?

We have in all of our societies a committee on ethics, and indeed its need is obvious. Seldom, however, do we hear of its action, for the simple reason that ethical laws are so universally violated that no comment is found necessary, no censure apparently needed. We shall stand in the shadow of our brother professions just so long as we refuse to recognize quality, higher aims, superior knowledge and the cultivation of ethics.







## **Nasal Obstruction and Malocclusion of the Teeth.**

BY DR. B. FRANK GRAY, Colorado Springs, Colo.

*Read before the Colorado State Dental Association, Denver, June, 1906.*

It is the writer's purpose to interest if possible the dentist and the rhinologist as well as the general practitioner of medicine in the malocclusion of the teeth which so frequently accompanies nasal obstruction.

Whether obstruction of these air passages be brought about from such causes as an hypertrophy of the pharyngeal tonsil, acute rhinitis, polypoid growths, enlarged turbinates, or other causes, the result will be that the passage of air to and from the lungs will essentially be through the oral cavity, the extent of the perversion being in proportion to the nasal occlusion. So that aside from any consideration of its dental significance there is enough of interest in the matter to enlist the serious thought of physicians. The mouth was never intended to perform the functions of the nose in the act of breathing. The nasal passages with the accessory sinuses, like all the organs of the human body, are particularly well adapted for the work which they were intended to do. Before passing to the lungs it is nature's purpose that the air be properly warmed; also the secretion of the mucous glands of the nasal passages not only has an influence in moistening the air to the necessary extent but this secretion may catch and hold in suspension particles of dust inhaled in the air which might otherwise pass on to the injury of the individual. It is claimed by some that this secretion has a germicidal action as well.



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The untoward influence on the growth and development of the child in cases of the type now being considered is well recognized, such children often being undersized and anemic, and having a characteristic expression of dullness. The open mouth and malocclusion of the teeth comprise the most noticeable diagnostic features in extreme cases and these are a real deformity, and in some cases the condition approaches what might be termed a monstrosity. It is little wonder that some of our early writers on the subject should have believed these patients to be degenerates, a theory that has happily lost in its following pretty generally.

It is not, however, the province of this paper to deal with the many different and important phases of these conditions minutely: there are men in the country who have been giving the matter long and careful study and who have collected much valuable data and we shall ere long hear from them I trust. Their contributions will be awaited with much interest.

Dr. Bogue, of New York city, in a paper read at Leicester, England, in July of last year, made the following statements: "I find by an examination of many hundreds of aboriginal skulls, in the development of which nature has been free to work her will without the assistance of man and where the so-called accidents of development occurred as they do with us civilized races though probably not with the same frequency, that in all those cases where irregularities in the development and positions of the upper teeth exist there are also irregularities more or less strongly marked in the development of the maxillæ and the palate bones and seemingly in the vomer, the sphenoid and ethmoid as well, and that the nasal septum particularly is sure to be crooked, and the turbinated bones so excessively curved as to materially interfere with the proper openings of the nasal meatus. . . . Per contra by just so much as the permanent teeth are regular in their development, and are regularly placed in their arches, all the sinuses of the maxillæ and facial bones are better developed, the nasal septum becomes straighter, the turbinated bones less obstructive, the sphenoid and ethmoid larger proportionately to the size of the skull and the facial bones occupy positions that add the dignity of strength to the individual."

Along the same line of thought, Dr. Herbert A. Pullen, of Buffalo, in a paper read before the N. Y. State Dental Society last month, speaks as follows: "Defective development of bones of the face and head and other parts of the body are noticeable as the result of mouth-breathing; the lower thoracic walls are sometimes contracted in the region of the true ribs, due perhaps to the fact that the inspiratory tension of the diaphragm is not compensated for want of the amount of air necessary to distend the inferior portions of the lungs, the pull of the muscles caus-



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ing retraction of the ribs, which in children are soft and yielding and sometimes rachitic."

It is along these lines of investigation that we are all particularly interested.

Again, Doctor Angle, whose ripe experience in orthodontia entitles him to a most careful hearing, has said: "With normal nasal respiration and normal relation of the dental arches, teeth and muscles the conditions are such as to perfectly maintain the equilibrium and the mutual support necessary to the normal development of the teeth and jaws. Nasal obstruction disturbs the equilibrium, placing the lips and muscles on a different tension, causing greater pressure of the muscles at some points than at others."

### **Duty of the Dentist.**

Dentists may be able to readily recognize cases in which nasal obstruction plays a part, particularly if the obstruction has attained extensive proportions. In most cases the diagnostic features already hinted at will probably be borne in mind but the irregularity of the teeth which is so often an accompaniment of these conditions may be the first thing to attract the attention. This malocclusion itself, of course, requires treatment and either the dentist or the orthodontist who may suspect some nasal obstruction ought to refer the patient to a competent rhinologist for examination and treatment if necessary. In the case of the dentist, the health and consequent well-being of the child is dependent upon his ability to recognize the condition and wisely advise in the matter. The same may be said of the orthodontist, and I would refer to the further fact that the success of his treatment of the malocclusion is very often dependent upon the patient's receiving efficient attention at the hands of the rhinologist, for he may correct the malocclusion to the best of his ability, and with every apparent success, only to suffer the chagrin and mortification of seeing the teeth revert to their old positions unless the nasal occlusion be cured. Indeed, in this event, are not the same influences which produced the malocclusion originally still operative to cause its recurrence?

### **Duty of the Rhinologist.**

On the other hand what ought to be the attitude of the rhinologist in these cases? To him probably the largest number of patients suffering from nasal obstructions present themselves for treatment, and to his skill should be credited the alleviation of an immense amount of suffering. So, to the rhinologist also, it seems to me there should be opening up a most interesting field of observation and investigation, for he has every facility for noting the condition of the nasal passages with the accessory sinuses and he may readily observe the harmony or inharmony of



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the teeth. The habit of recording in the history of each case the condition of the teeth as to their occlusion or malocclusion might not only be of benefit to him in his own work but it would certainly help the orthodontist and to the rhinologist and the orthodontist there is much of common interest. If the latter relies upon the skill of the former to help make his work a success what about the reverse? I think I may safely say that while the rhinologist does alleviate much suffering he may not always hope to have his patient thoroughly cured until the malocclusion of the teeth is corrected. As an instance I would cite the case of the habitual mouth breather, in whom irregularity of the teeth actually prohibits any possibility of the normal closure of the lips. Is it at all likely that such a patient will at once become a normal breather after the removal of the nasal obstruction? I believe the old habit of mouth breath-

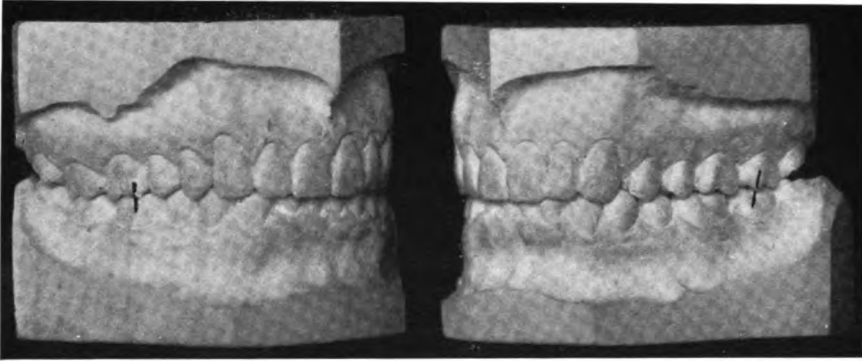


Fig. 1

ing persists rather stubbornly in many cases after such treatment, even when the malocclusion may not be a positive barrier. It is evident then, where there is inability to close the lips, that the work necessary to the patient's welfare is but partly done.

In eighteen hundred and thirty nine, sixty-seven years ago now, Dr. Chapin A. Harris commented as follows: "Sometimes the superior maxillary arch is so much contracted and the front teeth in consequence so much projected that the upper lip is prevented from covering them. Cases of this kind, however, are of rare occurrence and when they do occur they occasion much deformity of the face, and are a species of irregularity very difficult to remedy." This observation is true of these conditions as they exist to-day with the exception that the rarity of their occurrence is not so great, and their correction being now so much better understood is accomplished in a manner most gratifying.



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### Diagnostic Value of Occlusion.

At this point I may say a word as to what comprises the normal occlusion of the teeth, and by way of illustration I refer to Fig. 1. It will be noted that the anterior, or mesio-buccal cusp of the first molar tooth of the upper arch occludes between the anterior and posterior cusps of the lower first molar; or more properly speaking, in the buccal groove. While it is true that with the molar teeth in this normal arrangement the anterior teeth may be badly malposed it is a significant fact that in the case of patients suffering from nasal obstruction the molar teeth are very prone to become disarranged.



Fig. 2

In such cases the first permanent molar of the lower arch erupting at approximately six years of age is apt to assume a position distal to normal amounting eventually to the width of one cusp. Such a malocclusion is shown in Fig. 2.

In order to explain how this distal relation of the lower molar with its attendant malocclusion is brought about you are asked to picture to yourself a child we will say six years of age in which the nasal passages are so occluded that mouth breathing is a necessity. With the mouth being held open almost constantly the tendency is for the mandible to assume a position slightly distal to normal: now bearing in mind that the upper and lower first permanent molar teeth are approaching each other in the process of eruption it is not difficult to understand how readily the lower molar will assume a position of distal occlusion as shown in the illustration. As soon as the normal influence of the inclined planes of the cusp is lost, the eventual displacement to the extent of the full width of a cusp is assured.

The distal relation of the lower molar however is only the commencement of the deformity, for with the beginning of mouth breathing



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the normal force of the muscles is perverted, the anterior teeth no longer being hindered from protrusion and the tendency of the upper arch to assume what is known as the "V-shape" being brought about by the abnormal pull of the exterior muscles and as well, I believe, by the absence of the normal pressure of the tongue lying, as it must, on the floor of the mouth with the air current passing above. In short all is out of harmony, all out of normal balance.

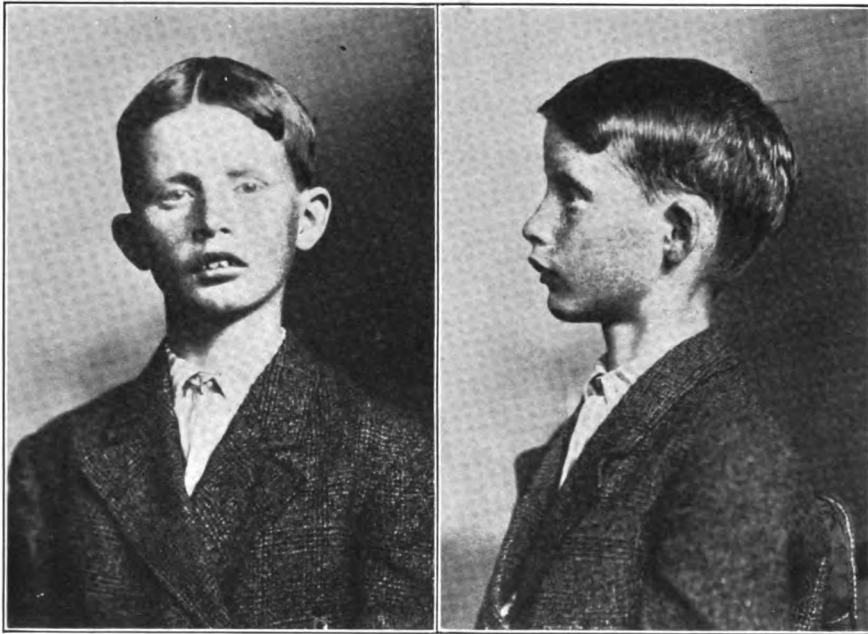


Fig. 3

Fig. 4

I would suggest that such cases are probably very progressive, the deformity increasing until the patient reaches maturity. The comparative ease of treatment during early life and the greater measure of success attendant thereon at that period are sufficient reasons for prompt action in combating these distressing conditions. However, some wonderful results are being accomplished in mature cases. Dr. L. P. Bethel, of Columbus, Ohio, has reported the case of a patient, a boy thirteen years of age, who was a mouth breather. Lower teeth in distal relation and upper incisors protruding in the characteristic manner. This patient suffered from the unfortunate habit of stammering, and after the use of the Baker anchorage six or eight months in treating the malocclusion this habit was largely corrected. At the end of fifteen or sixteen months'



time, which was required in the treatment because of complications, the boy was free from any impairment of speech. This is interesting and as Dr. Bethel suggests opens up a line of investigation as to whether malocclusion of this character is a causative factor in impairment of the speech.

**A Case from  
Practice.**

The photographs shown (Figs. 3, 4, 5, and 6), illustrate the unfortunate condition of a boy twelve years of age. I am now treating the malocclusion in this case. Adenoids were removed over a year ago. The rhinologist who recently examined the patient at the com-

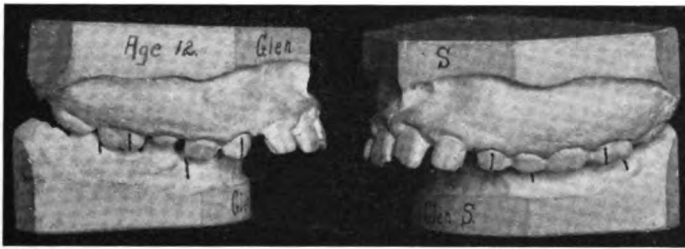


Fig. 5

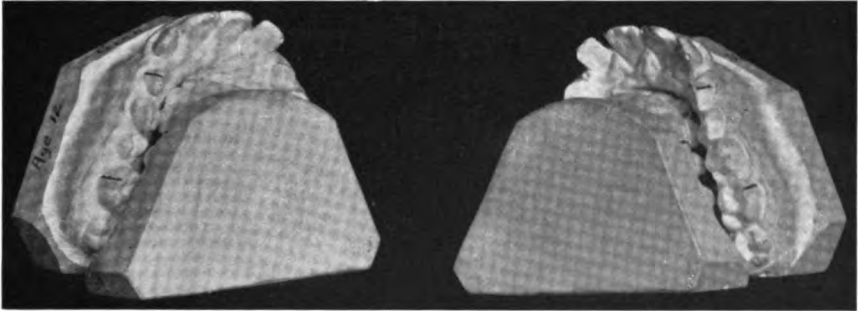


Fig. 6

mencement of my treatment of the case reports that the adenoid condition still persists but not to an extent which would have any perceptible effect on normal breathing. The malocclusion is in some respects of the most pronounced kind I have ever seen and while the superior arch has not assumed the "V-shape" so common, the distal relation of the lower teeth was undoubtedly brought about because of nasal obstruction. There is scarcely any articulation of the teeth to say nothing of occlusion: in fact with the exception of the molar teeth on one side there is absolutely no contact of the teeth at all. This patient is still a mouth breather,



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Fig. 7



Fig. 8



Fig. 9

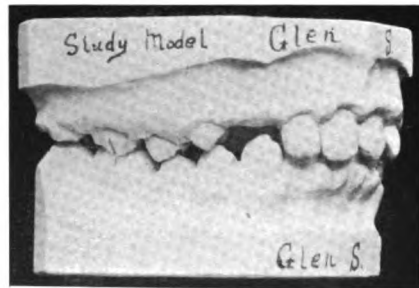


Fig. 10

and I believe he would continue to be so so long as his teeth remained as I found them a few weeks ago. The lips do not close, except by effort. Having so recently started treatment of this patient I shall have to wait some time before reporting results, of which, however, I am sanguine.

NOTE.—The publication of this paper having been considerably delayed I am enabled to illustrate in Figs. 7, 8, 9, and 10, made from photographs of study models, and of the patient, the very gratifying progress made in three months' treatment. The case will be fully reported later on.



Dr. Hawley of Columbus, Ohio, reports as follows with reference to two cases. Case I: Boy aged ten years; character of nasal obstruction, adenoids, which were removed at nine years of age. In six months treatment of the malocclusion, the arch was expanded 35-100 of an inch. The health and breathing capacity were greatly improved. In fact this patient could never sleep with the mouth closed until after treatment. This case was completed one year ago, and is reported to be still improving.

Case II is that of a girl, aged seven. This is one of the cases where the patient suffered from adenoids and abnormal breathing, although the normal relation of the molar teeth was not disturbed, as so commonly happens in patients of this type. The doctor reports this as a Class 1 case. Adenoids were removed one year before treatment of the



Fig. 11

malocclusion. Treatment covered a period of four months. Arch was expanded 30-100 of an inch. Perfect nasal breathing was never established until after treatment of the malocclusion.

Dr. Hawley reports further, that out of twenty cases taken at random from his collection of models eighteen have a history of some nasal or throat obstruction.

Dr. Frederick S. McKay, of the Angle School of Orthodontia, states that out of sixty-six cases examined, twenty-one have undoubtedly had their origin or at least been influenced by some form of nasal obstruction, probably adenoids. Six of these cases presented malocclusion of Class 1 type, and the remaining fifteen of Division 1, Class 2.

Dr. Martin Dewey, of Kansas City, who also has a connection with Dr. Angle's school, has very kindly given me data concerning two interesting cases. The first is of a girl aged nine. The rhinologist found she was suffering from adenoids, which were removed at the commencement of treatment of the malocclusion. The general health was improved, as well as the breathing. Mouth breathing causing so much deformity of the arch, this deformity must be cured as well as the nasal obstruction before the patient can again become a normal breather.



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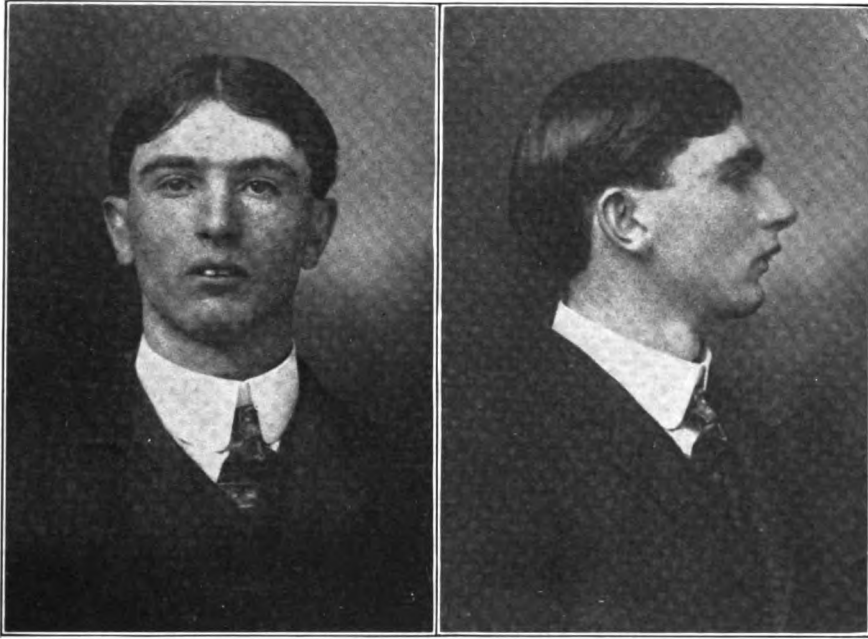


Fig. 12

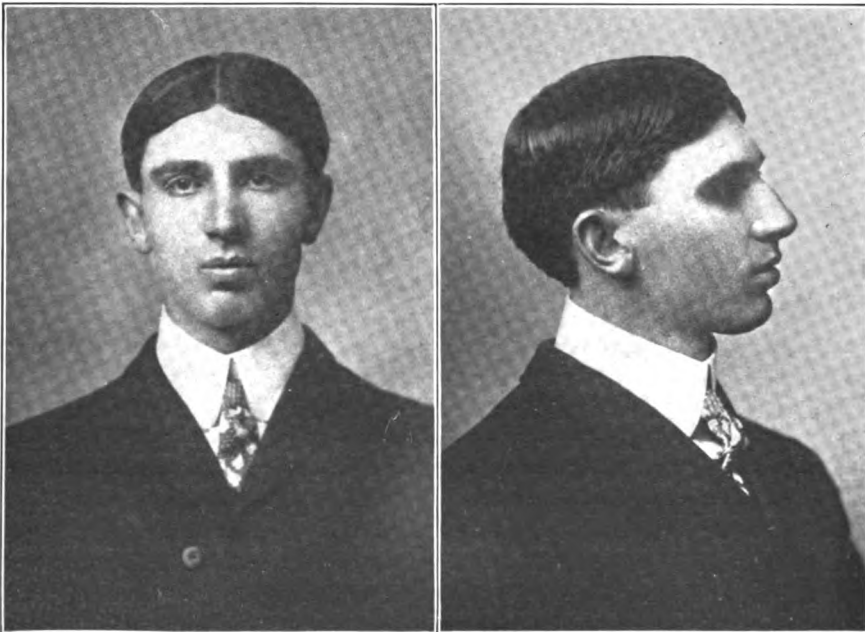


Fig. 13  
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The case which follows, also reported by Dr. Dewey, is that of a young man twenty-four years of age. The typical Division 1, Class 2, type of malocclusion is here presented. See Figs. 11, 12, and 13. The molar teeth are in the same relative positions in this case as in the one just referred to, but the facial deformity is much more excessive. Doubtless the inharmony of features in the former case would eventually have been as great as in the latter, as Dr. Dewey has suggested, had treatment not intervened. In the case of the young man, while there was no nasal obstruction at the time of treatment he was nevertheless a mouth breather for reasons which are apparent and which I have already mentioned. The patient undoubtedly did suffer from nasal obstruction at an earlier time of life and the malocclusion had its inception at that time. In only three months time this deformity was corrected, and a further result was normal breathing, and an improvement in speech.

Dr. A. R. Solenberger, of Colorado Springs, in commenting upon the subject-matter of this paper, stated as follows: "I am convinced that in the larger number of advanced cases of nasal obstruction, and consequent mouth breathers, there is sufficient malposition of the superior maxilla (including teeth, of course,) to require correction before the mouth breathing habit can be overcome."

In conclusion, I beg to reiterate the following points:

1st.—The interdependence of the rhinologist and the orthodontist; the work of neither is complete without the aid of the other in very many cases.

2d.—I would refer particularly to early diagnosis and treatment of malocclusion of the teeth. This applies with equal force to the rhinological phase of the work when such is required. The references I have made to faulty development as an accompaniment of nasal obstruction and irregularities of the teeth point to the need of early treatment during the formative years in order that nature may not be handicapped in her effort toward full and normal development.

3d.—The treatment suggested not only benefits the health of the patient but in restoring the teeth to normal occlusion the comeliness of the face is greatly enhanced, as all must testify who have observed the results of proper treatment of these cases. In the case of the Division 1, Class 2, patients first referred to, who for instance could question for a moment that his future success in life largely depends upon correcting the deformity?

The professions of dentistry and medicine are just commencing to awaken to the results which are attainable along the lines we have considered. Such results are the reward of men who by thorough study and preparation, and natural adaptability to the work, find in it a life work that is not only a delight to themselves, but a blessing to the race.



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### Discussion of Dr. Gray's Paper.

It is indeed a pleasure to listen to a paper which  
**Dr. Robert Levy.** deals with topics that bring the dental and medical profession closer together. The subject under discussion is one which dentists and rhinologists may conjointly investigate and I have no doubt that many important problems that are now misunderstood, or at best poorly understood, will, by being thus jointly studied, be made more clear.

Among the causes of mouth breathing special attention should be called to deflected septum. This in itself may be an important cause as was pointed out years ago, but it may be a result of mouth breathing. As a consequence of this pernicious practice the vault becomes high and the space between the roof of the nose and its floor, which mark the superior and inferior attachments of the nasal septum, is shortened. As the septum grows it is bound to be bent to one side or the other if its upper and lower attachments are thus approximated.

I was particularly impressed with one point in the paper, which is of much practical value to those of us who practice rhinology. Not infrequently after a complete and thorough adenectomy, mouth breathing persists and upon closer investigation it is found that this is due not to nasal or naso-pharyngeal occlusion, but to deformity of the jaws inducing malocclusion. This condition, as was pointed out by the Doctor, is one which should be corrected by attention to the deformity, and therefore if mouth breathing persists after complete removal of the nasal and naso-pharyngeal obstruction, the patient should be referred to an orthodontist. It is well to bear in mind that mouth breathing, while frequently a habit, may also be due to deformity. An attempt to correct this habit without correcting the deformity would be obviously improper.

As to stammering we have been led to believe that this may be due to peculiar nervous and mental conditions, as well as to naso-pharyngeal obstruction interfering with the proper action and control of the palatal muscles. I am satisfied that many cases are essentially due to malocclusion and deformity of the teeth, a correction of which is essential in its treatment.

I was much pleased with Dr. Gray's paper.  
**Dr. F. L. Smith.** Whatever I say I do not wish to be misunderstood as trying to tear down. All these theories we have are very beautiful, and I know of no better theory to follow than has been given us, but the things that perplex us every day as they come to us are the theories that do not pan out in a great many of the cases.



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I can cite lots of cases that would upset this theory in particular. Take the normal occlusion of the teeth, there is nothing more beautiful in the world but we are always running up against conditions that we can not quite bring under the theory. Where we have many cases that are typical of those the Doctor cited, we also have lots of cases, say of mouth breathers, where you have no such condition of the jaws; no recession of the lower or protrusion of the upper jaw. I am a mouth breather myself; never could sleep with the mouth closed; the upper teeth are receded rather than protruded; lower jaw the opposite. I have nothing approaching the normal occlusion of the teeth. I showed the condition to Dr. Ketcham the other day and he said "You certainly must have a hard time masticating your food." I want to say nobody can masticate his food any better nor with more pleasure than I can.

My mother has always been troubled with stammering. There could be no more perfect occlusion of the teeth than she has. Her face is normal, and there is no nasal obstruction. I think stammering is due to the fact that a person can not think and talk at the same time; can not get the language fast enough to express what is desired to be said.

In speaking of the removal of nasal obstruction and the subsequent development of the bones of the face I wonder if it is not very often the abnormality of the bones of the face and their positions, that causes this nasal obstruction rather than the nasal obstruction causing the abnormality. If you take these cases and remove the nasal obstruction, will the face develop as it should? Of course the nasal obstruction should be removed by all means, but do not be disappointed if this does not bring about the desired change in the face. How many differently shaped heads and faces do we see? Do you expect everybody is going to be formed exactly alike?

Another thing. A great deal has been said about the normal occlusion and the change it makes in the face and all that but no one has said anything about the shape of the jaws, the position of the teeth and alveolar process depending upon the shape of the bones of the face and their position. If you have the bones of the face and jaws depressed or protruded, would you not naturally expect to find the alveolar process and teeth conforming to them to a large extent? Does the alveolar process depend entirely upon the position of the teeth? Does not the shape and position of the jaw itself have something to do with it? We talk of expanding arches, and changing the shape of the face, but is there not a limit in many cases to the expansion of arches and what you can do with the face? Is there not a limit in many cases, to what can be done with a small receding lower jaw in the way of obtaining and maintaining normal occlusion, and in improving the face? These cases



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are usually cited as being typical mouth breathers. Are they always? Is the lack of development always due to mouth breathing and nasal obstruction? Is it possible to maintain a broad, rounded arch in cases where the face is thin and the jaws small and narrow? Even though the occlusion be made normal by extension of the arches, perhaps to the extent of tipping the molars and bicuspid buccally so that the buccal cusps do not meet, and the incisors and cuspids labially will not the influence of the inclined planes of the cusps and the muscles eventually draw the molars and bicuspid inward and the arches take the shape of the face and jaws to a large extent, thus protruding the incisors still more?

Some faces you would never improve, no matter what you did, because the trouble is in the immovable parts. But where the immovable parts are in harmony the face may be improved, or made worse by either depressing or protruding the mouth.

In riding down town mornings I have noticed a lady on the car; she is refined and I judge about thirty or thirty-five years of age; she has a small face, but the upper part of her face and her chin are in harmony. She has large teeth and as near as I can tell by looking at her her teeth are in normal occlusion but her mouth bulges out, reminding one more of an animal, because the foundation is not there for all those teeth and that sized arch. If the mouth could be set back in harmony with the rest of the face, you would have a very much better looking person.

Of course those are exceptions, the rule being normal occlusion, normal face, in the majority of cases but we are continually running into things that are a little outside the rule, the same as in other departments of the profession.

The thing that concerns me most is how to take care of these cases when they come in, not so much what was wrong with the ancestors, or whether the patient inherited this or that trouble. The question is, what can I do to correct it? On the whole, of course, we should stick to the theory that seems to cover most cases which the Doctor has given us.

The reason I speak of these things is because nearly all the articles that are written nowadays are so ideal that the beginner and the inexperienced are very apt to think that there are no exceptions to the rule.

I am well pleased with this paper and the discussion by Dr. Levy and Dr. Smith and I am impressed with the value of early diagnosis. It is better for the rhinologist to operate upon adenoids as early as four to six years of age, and for the orthodontist to move the lower arch for-

**Dr. Retcham.**



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ward, if in distal occlusion, back if in mesial occlusion, before the eruption of the first permanent molars. Then we will be more likely to have normal development of the nose, throat, the mouth, lips, teeth, the whole face and even the brain than if we wait until ten or twelve years of age before treating. One of the first things the orthodontist does in treating a mouth breather is to refer the patient to the rhinologist, and have all that is necessary done; then he places all the teeth in occlusion; but if the mouth breathing still persists, when the retainers are removed the upper incisors will move forward again, because they lack the normal pressure of the lip on their labial surfaces. It is also true that in some cases, where the rhinologist has put the nose and throat in good condition, that the patient still breaths through the mouth, because the teeth are in malocclusion and the lips can not be closed normally. The rhinologist to do his whole duty should send all mouth breathers to the orthodontist for examination.

A case which interested me very much is that of Dr. Dunn who once practiced in Denver, then in 1902 studied at the Angle School of Orthodontia. At that time his teeth were in perfect occlusion, with long arches, in harmony with his long, narrow face. In San Francisco last winter he showed me that through some accident normal breathing was interfered with, mouth breathing at night being acquired. As a result one side of the lower arch has slipped back, and the upper forward, so that side of the lower is now in distal occlusion the width of a bicuspid tooth.

Dr. Smith has told you that his teeth are in malocclusion, and yet he can use them to good advantage in masticating food. I do not doubt this as I know Dr. Smith has much native mechanical ability, and no doubt he has learned to get the maximum amount of work out of a poor masticating apparatus. He has made the best of circumstances, just as a person with an artificial limb may learn to use it exceedingly well, while a clumsy fellow with sound limbs may go stumbling about. I do not know what the Doctor might not do if he had normal occlusion! In my own mouth the molars and bicuspids are in occlusion on one side only, while on the other they are in end to end "antagonism" similar to the results usually obtained in orthodontia in the old days, when we paid no attention to occlusion. I can take a nice tender steak, thick and rare, broiled over charcoal coals, and placing a piece on the side of my mouth where I have only "antagonism" of the teeth, work the mandible up and down, sideways, back and forward, and only get an ordinary result, while by placing a piece on the side where my teeth are in occlusion and bringing the interdigitating surfaces together normally a few times,



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the juices are expressed from the meat and the pleasure of the gastro-nomic act is increased one hundred fold; the value of food in digestion is also increased as much. Are there not millions of people in this world who can never know the pleasure and nutrition to be derived from food needing thorough mastication?

Let us work for the ideal of occlusion, though we may not always obtain it, and not stop because someone may do well with teeth in mal-occlusion, or with artificial substitutes.

In 1904 I read a paper before this Association **Dr. T. E. Garmondy**, on the effects of mouth breathing, and some of the things spoken of then I think will bear repeating. The effect on the tissues of the mouth in mouth breathers is very important. The abstraction of water from the tissues does material injury, because taken from tissues not supplied by nature with more than is needed in their own economy.

One of the functions of normal breathing, is the warming of the air, as well as the moistening of it. The warming amounts to a very little, as proven by Kayser, as after tracheotomy the air is warmed to within one-half degree of that passing through the nose, but the moisture is very important, I think, because in these cases where we see the patients breathing through the mouth, the tonsils are irritated as well as the back wall of the pharynx and in the mouth the checking and breaking off of small pieces of the anterior teeth is very noticeable. In many cases cracks and fissures in the tongue may also be noticed.

As regards the air pressure, the reason for having deflected septum and high arch, may be partly that the negative pressure in the nose on account of there being but little air possible and the increased pressure in the mouth may have something to do with forcing the palate upward, drawing in the teeth and causing a deflection of the septum. The filtering out of dust particles can not be accomplished if the patient is a mouth breather and may produce wounds of the tonsils, and especially the back wall of the pharynx.

In regard to effect on general health after removal of adenoids and tonsils we almost always notice improvement, but we might think the improvement would be much greater if the malocclusion of the teeth was corrected, giving the child a normal occlusion thus enabling him to masticate his food properly. Here the orthodontist and rhinologist come closely together and should work together for the patient's good.

In regard to the stammering I might say a word. I do not think Dr. Gray meant to say that people with normal occlusion do not stammer. It may be due to some other causes. I had an interesting case of stammering come under my observation some time ago. The patient also



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talked as if "tongue-tied." I found that the palato-glossus muscles on both sides were attached over on the tongue about one-half inch instead of having normal attachment. Whether this had anything to do with it or not I could not tell although after cutting the muscle on both sides the patient talked better. The patient was quite deaf, which may also have been partly the cause.\*

The discussion accorded my paper is most gratifying. I shall be satisfied if I can do my part in pointing out the necessity for the correction of malocclusion of the teeth associated with rhinological conditions. Doctor Levy, as indicated by his remarks, has a lively appreciation of the importance of such treatment.

It is not the extreme cases of malocclusion alone, however, that require treatment; there are other reasons for the correction of these deformities than that of securing normal breathing. If the occlusion of the teeth is not normal the patient suffers a disadvantage in the matter of properly masticating his food to say nothing of the mental unrest which the knowledge of the deformity causes.

Dr. Smith is perplexed because the "theories" with reference to malocclusion of the teeth associated with nasal obstruction do not always agree with the actual conditions as they are found. In studying the etiology of conditions so complex as those we are considering it is little wonder that perplexities should be encountered. I have aimed, however, to study the matter in a broad sense and in its most commonly noted results. In medical practice certain well known diseases are diagnosed and treated after certain methods, but the disease may not always yield to the treatment; certain sequellæ may complicate the condition, sometimes taxing all the resources of the physician to successfully cope with the trouble. However, the fact that this is true does not cause the greatest thinkers in the medical profession to formulate entirely new methods for treating these diseases.

Likewise, in orthodontia the knowledge of certain well defined principles is necessary in order to successfully treat the varying conditions that present.

I think it is no argument whatever against the beauty and usefulness of the normal occlusion of the teeth, to say that such and such a person, with an abnormal occlusion, can masticate and enjoy his food well. So do some persons who are the victims of certain chronic diseases enjoy

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\* It may be interesting to know that since the above was written, Dr. Carmody has seen the patient referred to, and reports that he does not stammer at all at present. This patient also suffered from malocclusion of the teeth, which has been corrected, and he is no longer afflicted with the "tongue-tie" accent.—G.



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a great measure of happiness but they are in fact so accustomed to their ailments that they can not possibly realize what joy perfect health would bring them. Nature aims at the normal; if she did not, what a poor race of people we might soon become!

As to whether or not normal development of the bones of the face subsequent to removal of nasal obstruction is to be expected I should say yes, everything else considered. That is, if there be no untoward influence at work, the normal development would ensue, and while it is true that the faces and heads do vary greatly Nature usually manages to produce a type that is pleasing if she is not interfered with. Naturally enough the age at which these corrections are attempted would have much influence on the results to be obtained—the early formative period being best of course.

A case was mentioned in which although the normal occlusion of the teeth seemed to be present, there was still much apparent deformity of the face. If the Doctor could examine this case critically he would probably be able to determine wherein the inharmony originated, and if mature age were not a hindering factor a wonderful improvement would likely be possible. Of course an occasional case may be a real monstrosity which I have not meant to consider.

Referring to a further point suggested by Dr. Smith, with reference to the position of the teeth and alveolar process depending upon the shape of the bones of the face and their position. When we are considering the size, position and shape of the bones of the face, it is well to remember that these vary greatly but that with all their variation it is the rule that Nature conserves her interests in this as in other things, and sees to it that these parts are in the best possible harmony with the type of individual. The more closely we study along these lines the more do we realize the necessity for wise discernment in treating malocclusion of the teeth. The man who undertakes the correction of these conditions on a purely mechanical basis, with no idea of art relations, will surely fail.

The alveolar process is certainly provided for the support of the teeth and as to the shape and position of the jaw having anything to do with it it certainly has; all these parts are interdependent and their harmonious placement is what Nature aims to bring about.

The Doctor also asks, "Is it possible to maintain a broad, rounded arch in cases where the face is thin and the jaws small and narrow?" I would reply that it is perfectly possible to do so if the requirements of the case so demand. There is no reason why such an arch should be demanded where the jaws are "small and narrow" except in cases of retarded development, and in such cases if proper treatment be had at the



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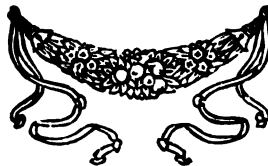
right age, the most gratifying results may be expected. There is a certain harmony or fitness of things that must constantly be borne in mind in treating malocclusion of the teeth.

The points brought out by Dr. Smith are such as are calculated to stimulate interest and study and have an influence for good in any consideration of the matter which has been discussed.

I am glad Dr. Ketcham makes the point with reference to early diagnosis that he does, for I believe our most successful treatment may then be given. Certain it is that the orthodontist's work is less complicated when done at a comparatively early age, and the results obtained may then be of the highest order. The case he cites wherein distal occlusion was brought about in mature life as a result of some nasal obstruction is of particular interest. My impression is that this must be of rare occurrence, under such circumstances.

Dr. Carmody's remarks were most interesting. I noted particularly what he said with reference to the deflected septum, its relation to mouth breathing, the high arch, etc. That the negative air pressure in the nasal passages and an increased air pressure in the mouth could cause a deflection of the nasal septum might seem incredible but let us remember that it is the constancy of the perversion that may do the damage. We know what the influence of abnormal pressure of the lips or cheeks may be on the occlusion of the teeth. No bad effects would come in a very limited time, but, long continued, the normal arrangement of the teeth would suffer. Likewise in the case of the deflected septum it was probably not brought about in a few weeks or months but followed as a result of long persistence of the abnormal conditions referred to.

With reference to stammering my comments were simply incidental. Whether stammering, truly as such, is influenced by malocclusion, my experience does not enable me to say further than that certain impairments of speech are caused by irregularly arranged teeth.







## **Pyorrhea : Its Relation to Malocclusion and Its Treatment.**

By A. H. KETCHAM, D.D.S., Denver, Colo.

*Read before the Colorado State Dental Association, Denver, June, 1906.*

With a keen realization of my limitations from a scientific standpoint I will give a few observations on the great scourge of the peridental membrane commonly called pyorrhea alveolaris, but first I wish to make a personal explanation.

When I decided to limit my time to orthodontia and pyorrhea I expected to be able to study both subjects and master them as far as possible, but I have found that to be really proficient in either requires that all the time and strength encompassed in the lifetime of one person should be devoted to but one subject. As my life work is to be orthodontia I have neglected the scientific aspect of pyorrhea.

I believe that the next great specialty in dentistry will be oral prophylaxis which, besides keeping the teeth as clean as possible, thus limiting the ravages of decay and maintaining their supporting structures in a healthy condition, will include the treatment of the diseased conditions of the peridental membrane, alveolar process, and the gums, due to filth, to the accumulations of salivary and serumal calculi, and attention to those conditions of faulty metabolism resulting in lack of tone of the tissues involved.

From its earliest history dentistry has been concerned with the restoration of lost tooth structure, little attention being paid to prevention of this loss. How much better it is if not erupting normally to place the teeth in occlusion so that the best use may be made of them in preparing the food for digestion; so that they may support each other, so that the contour of the face may be at its best, and so that they may



be readily kept clean, and then keep them clean, thus limiting decay and diseases of the supporting tissues of the teeth. There is a grand, a great field waiting in each city of our fair land for the right man who will take up oral prophylaxis. A field full of fair promises of renown and a lucrative practice, but he must be the right man, in love with his work for its own sake, with courage to stick to it and win in spite of temporary defeats, and with such a passion for knowledge, that all his spare time will be spent in study and research. To achieve the greatest measure of success, besides a good training in dentistry and in medicine as well, and the mastery of the technic of removing deposits from inaccessible pockets on the roots of the teeth, and the making of delicate retainers, he should have a good knowledge of bacteriology and chemistry and a thorough knowledge of the nutrition of the body and of the elimination of its waste products. Then above all he must be a broad-minded, level-headed gentleman. Can we prophecy anything but success for such a man, when the graduates of the Angle School of Orthodontia are proving that the right man may be successful in a dental specialty in a prosperous town, even if it only has 25,000 inhabitants? The success of these men is paving the way for other dental specialties in comparatively small cities so that those who follow while leading a strenuous life, will not have the hard fight which has been the lot of the pioneers.

**Pyorrhea  
Classified.**

To return to the subject of this paper, pyorrhea alveolaris is usually divided into three classes.

First: Those arising from primary gingivitis with the presence of hard, scaly, dark calculi beneath the gum margin.

Second: Cases which Black describes as phagedenic pericementitis, in which gingivitis may not be marked, and early deposits may be entirely absent; but there is necrosis of the pericementum advancing in more or less of an irregular way.

Third: Cases in which degeneration and necrosis of the pericementum and deposits of calculi occur upon some lateral aspect of a tooth, the gum margin being apparently normal. In all these classes where there has been considerable destruction of the periodontal membrane and alveolar process, the teeth become more or less loose and move out of their normal positions into malocclusion, or if already in malocclusion, it is intensified.

**Treatment of  
Pyorrhea.**

The treatment may be briefly summarized as follows: First—Removal of all the calcarious deposits from the roots of the teeth and cauterization of the pockets; second—fixation of loose teeth; third—cleanliness and systemic treatment when indicated. Of course,



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in the second class there are no deposits and I believe Harlan recommends proceeding with the treatment just as though the deposits had been removed.

When upon appointment for examination a pyorrhea patient is first presented it is my custom to examine the teeth carefully to determine approximately the extent of the disease, the looseness of the teeth, and the care that the person has been in the habit of bestowing upon them. If the teeth show that they have received almost no care and the person appears to be careless about personal cleanliness, I refuse to take the case as I believe it is better to let such a person go and work out his or her own damnation rather than to try to treat the case and have it relapse after a short time from lack of care. If a decision is reached to treat the case, an appointment is given for one hour. In a case of the first class, after spraying the mouth the usual treatment, which is varied according to circumstances, is to place one of Mulford's cocain and adrenalin tablets upon a glass slab and add a drop of water; then this syrupy solution is carried into the pocket around the tooth to be treated with a delicate spatula blade bent at an angle; then the proper instruments are selected. Personally I prefer Harlan's, Darby-Perry, White's, and some of my own fashioning, preference in order named. If necessary one hour or more is spent upon one tooth though usually more than one may be scaled, but whatever surface is started should be finished at that sitting and must be cleaned thoroughly, a careful examination of the sides of the pocket being made as sometimes there is an extension of the pocket running to one side part way up the root. These sittings are repeated until all the affected teeth are scaled. Usually if the scaling has been done thoroughly pus does not form again in that pocket, but if it does in a few days and the tooth upon testing proves to have a vital pulp the chances are that a scale is still present upon the root. Of course, if a pocket extends near the apex of a root the tooth should be tested for vital pulp, and if pulp is found dead, the foul canal should be treated and filled in the usual manner. Sometimes even then pus will continue to form and the apex of the root may be found to be absorbing; then the amputation of the root in a multirooted tooth or of the apex in a single rooted, if the tooth is held by attachment of pericementum to one side of the root, will usually effect a cure. Sometimes a skiagraph will show that the root canal is nearly filled with a deposit of secondary dentine, the pulp dying before the deposit filled the canal, and an alveolar abscess resulting. I have found this condition in lower incisors and cuspids and attributed the secondary deposit of dentine to the irritation to the tooth pulp from thermal changes, etc., upon the exposed root.



**Treatment by  
Patient.**

At each sitting I endeavor to impress upon the mind of the patient the necessity for cleanliness, explaining that after I have done my work thoroughly, then the success of the treatment depends in a great measure upon the care they give those teeth and gums. I insist that at least after each meal a quill tooth pick or dental floss must be used, being careful not to lacerate the gums. This is followed by a spray of  $H_2O_2$  in a nasal atomizer with a right angle point, so as to force the spray between all the teeth, and drive the particles of food from between the roots and out of the pockets. The ordinary spray is too weak, and it would be much better if the patient could have compressed air, registering from thirty to fifty pounds in an inexpensive form of tank. Spraying is followed by vigorous use of a tooth brush with hard bristles shaped like a Prophylactic, or one with alternate rows of bristles missing. Several brushes should be provided so that one need not be used more than once during the twenty-four hours, and put away to dry the balance of the time. The lower teeth should be brushed up and the upper teeth down, as much as possible. A dentrifice having an alkaline reaction, like Calox, is preferable, and magnesia should be used to neutralize the acid reaction of the  $H_2O_2$ . After brushing, the gums should be massaged for fifteen minutes with firm but not too hard pressure from the fingers, rubbing in the same direction as brushing. You may think that this is more time than a patient will spend upon the teeth each day, but in a bad case if the teeth are to be saved, this course of treatment must be followed for a few months at least.

After the scaling is completed I see the patient once a week and spray out the mouth with an alkaline antiseptic and touch up any spot on the gums needing stimulating with tinct. iodine, iodide of zinc, and glycerine, or aromatic sulphuric acid, sometimes finishing with sulphate of quinine in a powder atomizer under heavy air pressure, filling the pockets full. If the roots of the teeth are sensitive, they may be painted with nitrate of silver, protargol, or argerol; if the former is used protect the gums with cotton and follow with salt solution. The time between these treatments may gradually be lengthened until once in one, two or more months will be sufficient, just to polish surfaces of the teeth not covered by the gums and to see that the patient is not neglecting them. No matter if the teeth are treated properly by the operator, if the patient allows fermenting food to collect around between the roots and beneath the gum margins, reinfecting the pockets, a cure can not be affected. But with conscientious effort and the co-operation of the patient, many a cure may be accomplished. I believe that as high an average of cures may be secured by oral prophylaxis as by the rhinologist, and I trust



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that we may discover some method of stimulating the tissues involved in pyorrhea so that so much will not depend upon the patient's care.

A year ago I purchased a complete X-ray outfit, intending to try its stimulating effect upon these tissues, as Dr. Weston Price, of Cleveland, and Dr. Rhein, of New York, reported favorable experiences with it, but I could not take the time to experiment without neglecting orthodontia. When one of the two or three gentlemen who are thinking of limiting their time to this work here in Denver actually start it will give me great pleasure to refer my pyorrhea patients to him.

### **Prevention Recommended.**

When the specialist appears upon the scene, his patients will visit him every few weeks and have all the surfaces of the teeth above the gums cleaned, he will pay special attention to the gum margin and if it is not perfectly healthy, will locate the cause and if serumal deposits are present, remove them, thus preventing the first class of pyorrhea. He will study and experiment, keeping a careful record of all his cases. It is too much to hope that he will discover the causes of the deposits upon the roots of the teeth in the first and third classes and the necrosis of the pericementum in the second class. There are those among us who dispute the systemic origin of the second and third classes, but I should not be surprised if it is eventually found that faulty assimilation of the food and faulty elimination of the waste products has a great deal to do with all the cases and classes. But we are only guessing; what we need is careful scientific research, and science is but classified knowledge.

### **Pyorrhea in Relation to Malocclusion.**

Pyorrhea alveolaris is one of the pathological causes of malocclusion, the malocclusion progressing rapidly as the support of the teeth is destroyed. In many of these cases correcting the malocclusion will improve the health of the peridental membrane and alveolar process, but thorough treatment of the pyorrhea must be given first, and in only the most favorable cases would I advise extensive movement of the teeth. The retention is really the most serious problem involved in treating malocclusion in pyorrhea, permanent retainers for some of the teeth being often required.

Fig. 1 shows a pyorrhea case which I treated in 1900 with the most gratifying results, the flow of pus ceasing upon the removal of the deposits and the gums soon assuming a normal color and hugging the teeth tightly. This patient was faithful about the care of her teeth and followed my instructions to the letter. In 1902 there having been no recurrence of the pyorrhea I began the treatment of the malocclusion with the result shown. After two years the retainers were removed, when



the right upper lateral incisor started to move labially again and the left to rotate slightly. These were placed in position the second time and retained by drilling a hole in the lingual fissure of each, then placing a snugly fitting 22-gauge iridio-platinum post with a pure gold cap or collar around outer end, thus protecting the cavity. A plaster impression was taken with posts in position, then model constructed and round

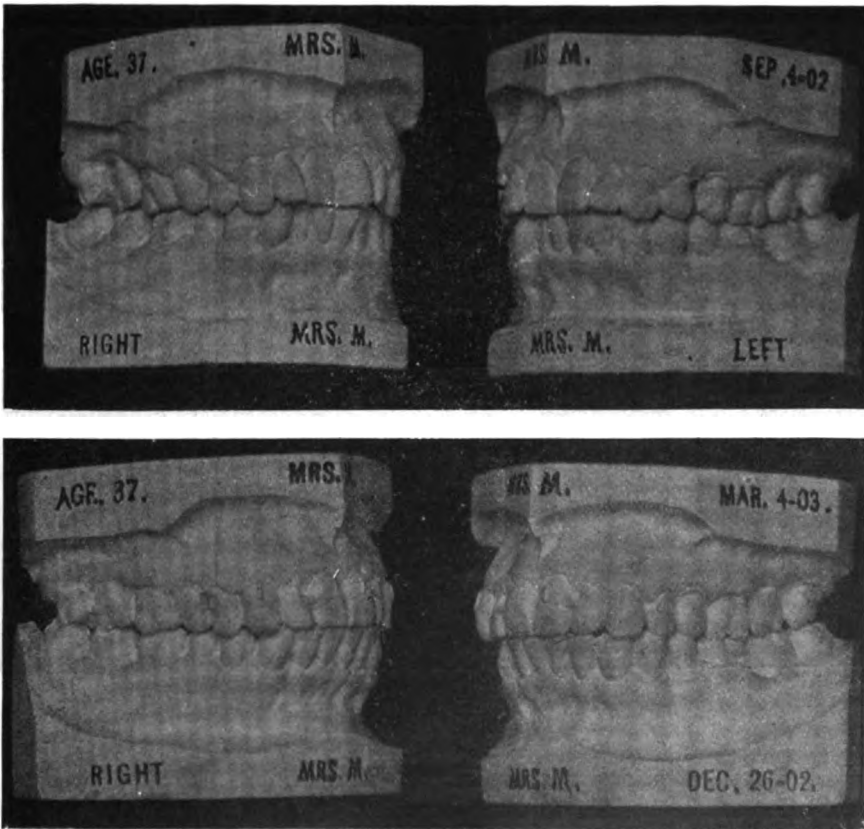


Fig. 1

iridio-platinum wire soldered between, uniting the posts which were then cemented into place as described by Dr. Case in proceedings of the Fourth International Dental Congress. This appliance is retaining these teeth and will have to be worn permanently, but as it can not be seen from the labial side and is easily kept clean, it is not especially objectionable.



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The lower incisors also started to move, so connected bands were cemented to the cuspids and are holding the teeth perfectly and will also have to be worn permanently. In 1905, after this patient had spent the summer on the coast I found three places where the gums were inflamed on lateral aspect of as many roots, and going over her teeth carefully in three or four sittings, found altogether five or six scales, most of them minute but one just under the gum margin on the distal surface

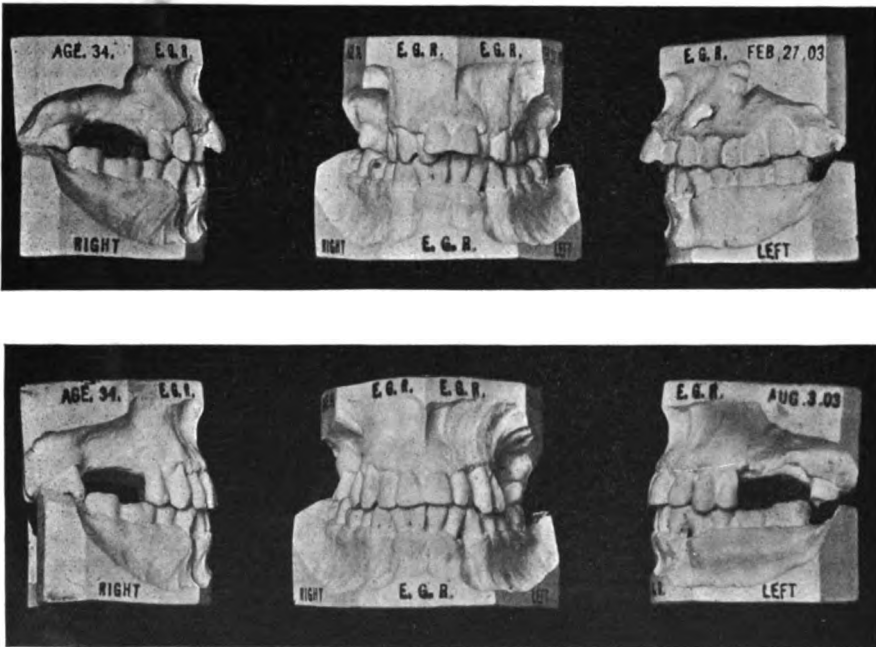


Fig. 2

of a lower third molar was quite large. At this time I noticed a sweetish acid odor to the breath, so often described by one of my old teachers, Dr. Geo. F. Eames, of Boston, the author of *Dental Medicine*. After the deposits were removed the gums resumed their normal tone in a few days.

Fig. No. 2 is of a case in which the upper central incisors were quite prominent, so much so that the upper lip did not cover them. The deposits were removed from the roots of all the teeth and in a few weeks the regulating appliances adjusted and the eight anterior teeth moved back the width of a bicuspid. These were retained by a wire resting on labial surfaces of the incisors and vulcanized into a plate which carried



the missing bicuspid and molars; then after nine months the missing teeth were supplied by bridges and these with the upper lip are the only retainers employed. The pyorrhea has not recurred.

Sometimes where a tooth is lost and the pyorrhea teeth have moved partly closing the space, as in Fig. 3, it is best to regain space for a substitute of the normal width, Fig. 4.

In Fig. 5, I thought it best to true up the incisors and make normal

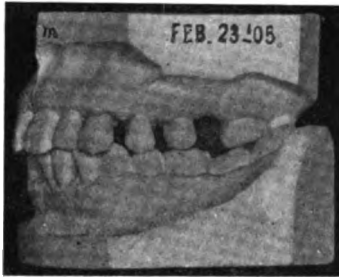


Fig. 3



Fig. 4

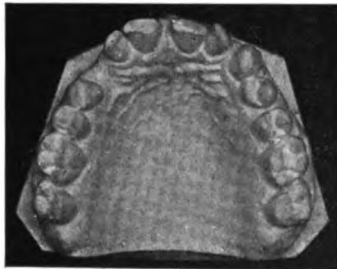


Fig. 5

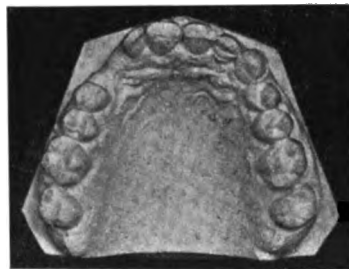


Fig. 6

space for missing tooth, then retain the incisors and cuspid by post cemented in lingual pits and connected by retaining wire. Fig. 6.

Sometimes we find the upper central incisors widely separated, Fig. 7; these can be drawn together easily, after treating the pyorrhea, and permanently retained by the retainer mentioned above—Fig. 8.

#### **Retainer for Pyorrhea Teeth.**

In the worst cases we find many of the teeth quite loose. In case of the lower incisors, a retainer, Fig. 9, suggested by Dr. Harlan, is very good. After scaling place the rubber dam over the teeth to be retained, including one more at each end, then if the cuspids are fairly firm, begin with one and weave a fine gold or gold and silver wire around the incisors and tie to the other cuspid trying to draw the irregular teeth into line; then cover this wire with a solution of celluloid



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dissolved in acetone the consistency of cream, working this around and between the teeth over the wire into the shape of bands. After a couple of hours the patient may be dismissed with a coating of sandrach to protect the celluloid and the next day with a sharp knife, stones and disks, the celluloid may be trimmed and polished. This makes a good temporary retainer, one which does not separate the teeth nor cause as much pain



Fig. 7



Fig. 8

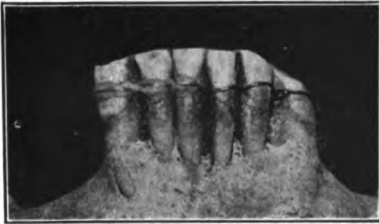


Fig. 9



Fig. 10

as fitting metal bands and it can be used on very loose teeth. After six months or a year when the teeth are more firmly fixed in their places a permanent retainer may be placed. If the cuspids are also loose, cement Angle clamp bands upon the bicuspid and attach wire to these. For the celluloid cement use celluloid in thin sheets obtained at any art store; add acetone same as you would mix shellac varnish.

A good retainer for a single loose tooth similar to one used by Dr. Angle, is to make a band for the tooth from thin band material then solder four spurs to its gingival edge, one at each of its four angles, the mesio-labial, mesio-lingual, disto-labial, and disto-lingual, Fig. 10, these spurs to touch the tooth standing mesially, at its neck labially and lingu-ally and to touch its distal neighbor in the same places. After the band



is cemented to the loose tooth, these spurs may be pinched tightly against the necks of the adjoining teeth and thus retain the loose tooth with the minimum amount of attachment to its neighbors. Care must be exercised to have the spurs touch the anchor teeth at their necks for if against the labial and lingual inclined planes of a cuspid or incisor, the loose tooth might slide out of its socket. On account of their shape, loose bicuspid and molars are hard to retain. Sometimes I use combinations of plain and clamp bands soldered together and cemented in place close to the occlusal surfaces, but bands materially increase the difficulty of keeping these teeth clean. I have one patient in whose mouth on one side the first bicuspid and second molar are quite loose, while the second bicuspid and first molar are comparatively firm. Her son, who is a dentist, will devitalize the pulps in the loose teeth and cut a deep groove distally from the pulp cavity in the first bicuspid through the second bicuspid and first molar to cavity in second molar; then he will take an iridio-platinum bar of the proper length and gauge, bending the ends at right angles, and fit them into the pulp cavities in second bicuspid and second molar; after the ends are cemented into place, amalgam may be used to fill the cavities and grooves over the bar. This will not be as conspicuous as the bands on the bicuspid and will be easier to keep clean.

In conclusion I can only say that in treating these cases, eternal vigilance is the price of success.

### Discussion of Dr. Ketcham's Paper.

**Dr. Smith.** I was much pleased with Dr. Ketcham's paper, and wish to express my appreciation of his thoughts along these lines. I think his theory right; all depends upon how well it is carried out. Only I am not quite as sanguine as the Doctor is as to the future hopes of success in these cases. I think we should do all that can be done, but we should not expect too much. We get a feeling from so many of these papers that all these things can be carried out just right. I have not as much faith in the systemic treatment and scientific research, etc., as I have in the good thorough mechanical work in cleaning these teeth, and maintaining them properly. I believe there is more in thorough cleaning and retention than in any medical attention you can give them. If this is done thoroughly, you have done the most that can be done. Of course, in a good many cases, the medical treatment plays a part, but not so much as the other.

I have made up my mind to this, that when you talk about cures



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for these bad cases, you are going a little further than the law allows, considering the conditions you are handling. Where the peridental membrane is gone, the pericementum, the process, you need never expect to bring any of that back; where the gum is held up by the healthy attachment around the rest of the teeth and the adjoining tooth so that you have a permanent pocket by having the gum loose, you are going to have trouble as long as that condition remains. You may go over the teeth and cleanse them as often as they need it, and keep them free from pus and anything that might get in there, but you still get that condition; you can not say you can cure it. If the pocket is on the lingual surface, for instance, although it may be very deep, if you can cause a recession of the gum as far as the attachment, you can often get rid of your trouble. I have had cases in which by determining how far this condition had gone, and then cutting out a large piece of tissue between the attachment and the free margin of the gum, I have drawn the gum down and gotten rid of the pocket. Very often you will see nature has taken care of it in that way on the lingual roots of upper molars and the anterior teeth, where there seems to have been an attachment and the process seems to have gone all the way round the teeth so that the recession was even.

Dr. Case's appliances for holding the teeth after regulating (for pyorrhea cases) are made to fit the teeth perfectly when cemented on, and hold one tooth as rigidly as the other, no matter how loose they may be.

I feel about these pyorrhea cases a good deal as I do about tuberculosis; with the lungs and tissues gone, you can not bring them back; so long as there are pyorrhea pockets you can not get rid of suppuration; when you can arrest the condition and get the places to heal, and have proper care on the part of the patient, they will often do well. However, the weakened condition will probably always be present.

The necessity of retaining and holding the teeth firmly in place so they can not move around, is apparent. The meanest condition we have is where the pocket is between the teeth. About two-thirds of the length of the root may be involved in a case of this kind. These conditions are very discouraging sometimes, though sometimes we are very happily surprised to see what nature does in some cases.

Two ladies who were in my office some time ago had recession of the gums on some of their teeth to the extent of  $\frac{1}{8}$  to  $\frac{1}{4}$ -inch; the gums were healthy, there being no pockets at all. One of the ladies had never heard of pyorrhea until someone had advised her to go to a certain man in the city. He scared her by telling her she had a very bad case of pyorrhea, which she should have treated right away; that there was pus around all of the teeth, etc. She did not see it, however.



**Dr. Chambers.** Dr. Smith and Dr. Ketcham have both emphasized the fact that the first thing necessary is thorough removal of all desposits. We have heard that ever since Dr. Riggs took up the subject. I think the music on pyorrhea about the same as it was forty years ago; the only difference is we have these different methods of anchoring and fastening teeth; these will help us out wonderfully.

**Dr. B. Frank Gray.** Any degree of success in the treatment of pyorrhea, requires a quality of knowledge, patience and adaptability, that the average dental practitioner is quite willing should be exercised by the man who makes a specialty of this work.

The demand for the services of the orthodontist was made possible because of the comparatively inadequate attention paid to this branch of the profession by the general practitioner. The same is true of pyorrhea. As soon as the specialist in this work proves his ability to successfully treat the disease, he will receive that recognition which he deserves.

Launching out into special practice of this character is somewhat in the nature of an innovation, and the results attendant thereon will be in proportion (everything else considered) to the amount of actual study and energy put into the work.

**Dr. Ketcham.** We all agree upon the necessity for thorough cleansing. It is the old, old story, but some day when we have a man who will devote his time to this subject, a scientific man, a man who will acquire knowledge and classify it, and keep getting higher and higher and not dissipate his time and strength on gold fillings, orthodontia and everything else, then we will probably accomplish more in a few years than we have in forty. What we need to know is what causes these deposits; and how to prevent them. If the right man gets hold of the subject, a man like Miller, Angel, Kirk, or Black, who will devote all his time and energy to this, we will probably see the after treatment of pyorrhea revolutionized. Now the best after treatment I know of, is thorough cleaning and stimulation of the pockets where irritation may come about from infection, and in some cases an anti-rheumatic systemic treatment, but we must depend principally upon the patient's care.

As to cure or no cure, in the majority of cases if we first do our work conscientiously, and give the patients to understand the part they are to play in the treatment, spraying, scrubbing, and massaging, and they do it thoroughly, and their metabolism is not too faulty, we will probably get a cure; I do not mean restoration of lost process or other tissues, but a filling of the pockets with scar tissue and a constriction of the gum





so that it closes around the tooth tightly; if we can get this, it is better than the practice of cutting away the fleshy walls of the pocket in order to destroy it, and leaving a large portion of the tooth root exposed.

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## **Prevention of Disease in or Through the Oral Cavity.**

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By DR. A. L. WHITNEY, Denver, Colo.

*Read before the Colorado State Dental Association, Denver, Colo., June, 1906.*

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As oral surgeons and oral physicians, it is our duty to familiarize ourselves with the diagnostic symptoms of the oral tissues, that we may do all possible to ward off disease or cure existing diseased conditions. Infectious or contagious diseases are now recognized to have their origin in minute vegetable organisms known as bacteria. It may be well to consider for a moment the relation of the oral tissues to bacteria. The mouth under the most favorable circumstances is an ideal incubator for the development of many forms of bacteria, and bacteria both pathogenic and non-pathogenic are present in the mouth at all times. The life-circle of these bacteria demand certain conditions, viz.: suitable temperature, moisture, food, and a removal of their waste products sufficient to prevent their own destruction. That all these conditions are found within the oral cavity goes without saying.

### **Bacteria in the Mouth.**

The oral cavity is the main gateway to the entire body, and it is through this gateway that many destructive diseases find their origin from infectious material in the mouth. Dental bacteriology is still in its infancy; however, much good work has been done by such men as Miller, Black, Goadby, Leber, and others. Through their efforts we are told that local lesions are found in the mouth indicative of constitutional and acute infectious diseases. The micro-organisms of tuberculosis, thrush, erysipelas, anthrax, actinomycosis, and others, are often present in the mouth, and, with purulent discharges from abscesses, and pyorrhea pockets passing into the stomach, may produce general catarrh of the digestive tract.

Nature puts up natural defences against these invading micro-organisms. She endeavors to prevent their entrance into the tissues. The skin is a natural mechanical barrier, and when unbroken is almost impregnable to bacteria. Many bacteria, that gain entrance through the mouth by food, air, or drink, become mixed with the mucous secretions and are carried away. Healthy mucous has a devitalizing power for certain organisms.



The gastric juices kill many and the intestinal juices retard their development, so that comparatively few develop to the extent of producing infection, and further, when bacteria do gain access to the tissues, they still have several elements with which to contend. There is a germicidal substance in the blood, which is a product of the leukocytes and resembles nuclein, called alexin, which prevents their development. So between the process of phagocytosis, positive chemotaxis, the alexin of the serum of the blood, the gastric and intestinal juices, Nature puts up a good defence herself. If, however, in the struggle for existence, these natural defences fail to perform their entire duty, whether from fatigue, disease, or debility, the tissues fall a prey to the invaders and disease results. The bacteria are for the time masters of the situation. The occasional failure of these natural policemen of the body to protect makes it necessary for us to assist by artificial defences. The *keystone of prevention* lies in *hygiene* and *prophylaxis*. Fermentation, putrefaction, and uncleanness in the oral cavity predominate in and about the teeth; consequently these organs need first attention. Prevention is better than cure.

**Oral  
Prophylaxis.**

Few teeth receive sufficient exercise. The more highly civilized a community the greater the ravages of decay, and degeneration of the pericementum. This is due largely to a lack of exercise owing to the abundance of prechewed and predigested foods consumed. Nature's method of prevention is, to keep the teeth and the surrounding tissues healthy by proper exercise.

Teeth, the hardest tissue in the body, were intended for service. Proper exercise cleans the teeth and strengthens the surrounding tissues.

The trend of modern science is toward the prevention of disease.

If the environment of the mouth can be controlled the teeth are rendered immune from decay.

Realizing the desirability of preventing disease in the mouth, many patients are pleased to avail themselves of frequent oral prophylaxis at the hands of the dentist.

There is no doubt that this is a step in the right direction. When we take into consideration the complex association of tissues that exist in the oral cavity, and their intimate relation to other tissues both by contiguity and continuity of structure, it is easy to realize that any disordered condition in the mouth must necessarily affect, in a greater or less degree, organs or structures that are thus intimately associated, and, vice versa, disordered conditions in other organs or tissues more or less remote may be manifest by derangements in the oral cavity. Many local irritations, inflammations, and hypertrophies are allowed to pass the dentist without proper treatment. These dentists are designated by the late Dr.



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W. C. Barrett as unfaithful practitioners. They belong to the class who bewail the influx of new dentists, insisting that the profession is already overcrowded, while they themselves are neglecting a large field that should properly be covered by the oral physician.

**Diseases Having Oral Manifestations.** Among the lesions found in the mouth indicative of systemic disturbances, and which we should recognize specially, are those of syphilis, on account of its malignant character, especially in the first and second stages, and the danger of infection both to the operator and succeeding patients. These lesions should be easily recognized in most cases if we remember a few of their general characteristics. The primary stage is shown by the chancre. It is a single sore, appearing at first as a pimple, which soon breaks down, forming an ulcer, the discharge of which is very infectious. The principal diagnostic symptoms are the absence of pain, soreness, or discomfort to the patient. The base is hard like cartilage and the nearby lymphatic glands soon become enlarged. The secondary stage is shown by reddish eruptions, enlarged lymphatic glands, and mucous patches or plaques in the mouth which have a crater-like appearance, raised at the edges and eaten out in the center and discharging a sanious very infectious fluid. The tertiary stage is shown by the gumma or lump beneath the surface, which may break down leaving an ulcer. Hereditary syphilis is shown by the so-called Hutchinson teeth when other indications are present. Arrested development of the teeth is seen, resulting from eruptive diseases of the skin or fevers occurring during the period of development. Spongy gums and loose teeth are seen in cases of scorbutus and diabetes.

Neuralgia, rapid caries and gingivitis are common during pregnancy; pigmentation of oral tissues in Addison's disease; the blue line on the gums in plumbism; pericementitis and gingivitis in cases of uric acid diathesis, etc., etc.

Gastric disturbances are often reflected to the tongue. The normal healthy tongue is of whitish-pink color, smooth and moist. In hyperacidity it is of a dull-whitish color. In an alkaline state with arterial congestion it is red with fur. The danger symptoms of the tongue are tremulousness, dryness, a very red or very dark hue. The tongue is an index of the progress of disease. As the disease progresses it becomes furred toward the point; as the disease diminishes it clears up from the point backward. The symptoms of the tongue are not so reliable in old age.

**Prophylactic Treatment.** The late Dr. Bonwill many years ago (1887) claimed that he could cure pyorrhea alveolaris by keeping the teeth clean. And to-day after years of experimental research we can safely say that, although



there may be predisposing systemic causes, local infection of the pericementum is essential to the disease, and further, if the infectious accumulations are removed, there is shown a marked improvement in the tissues. There is only one way by which these accumulations can be removed, and that is, by instrumentation. Under frequent cleansing and massage the teeth and gums and pericementum become improved and so remain; even the enamel seems to respond and become more translucent. The technique of treatment for the thorough removal of deposits and restoring the tissues to health is familiar to all. Scalers, pumice, or some abrasive carried on rubber or wood points of various shapes are used. Twine and floss silk are used. Antiseptics are freely and forcibly used at all stages of the process, and after all a germicide and astringent, as there is danger of inoculating the tissues, and a tonic astringent action is desired. Trichloracetic acid 25 to 50 per cent., lactic acid full strength, sulphuric acid 25 to 50 per cent., are among those most beneficial. Long cusps, pits, and groves may be polished. A smooth, self-cleansing surface is not liable to decay. Enamel is not to protect the teeth from decay so much as it is to strengthen them and prevent wear.

In cleaning out deep pockets, the push or pull movement is used with differently shaped scalers and abrasives, until the surface of the root is perfectly cleansed. Inaccessible pockets may be enlarged by packing with a ten per cent. solution of trichloracetic acid, on cotton, for ten or twenty minutes. It is not my intention to detail the prophylactic treatment of pyorrhea alveolaris; you all know how difficult and tedious the process is to both the operator and patient.

The object of this paper is to emphasize and recommend oral prophylaxis, and present for your consideration at the clinic an attachment for the dental engine by means of which a forward and back movement is obtained, similar to that used with scalers, chisel, files, abrasives, etc., only under better control and a hundred times more rapid and effective.







## **Chemistry: Its Relation to Dentistry.**

### **A Plea for a Broader and More Scientific Research.**

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By DR. WILLIAM A. LOVETT, Brewton, Ala.  
*Read before the Alabama Dental Association.*

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In attempting to discuss so broad and scientific a subject as that of chemistry, I appreciate keenly the difficulties of the task assigned me. Its very broadness renders it exceedingly tedious to condense in a short paper that which may be of most interest to men who are thoroughly familiar with the subject.

It shall be my purpose to make a special plea for a deeper and more scientific research by the dental profession generally, to the end that we may be better able to give practical application of chemic laws to dental practice.

In 1889, Dr. Mitchell predicted that within ten years from that time the course in chemistry for the dental student would be distinct from that of the medical student, except possibly in a few minor particulars, and that he knew of no professional man to whom chemistry would eventually prove more valuable than the dentist. "Many of the most perplexing problems," said he, "with which the dentist has now to deal, will in due time be solved by the dental chemist."

This must be true, for to whom else may we look for a solution of these problems but to a chemist who is also a dentist, and who knows what these problems are, and who is sufficiently interested and competent to carry on a scientific research of this kind? No abbreviation of the study of the fundamental chemic laws would result from this special course. It would be necessary to cover the same ground we do now, extending our studies and experiments into special lines more particularly suited to the requirements of the dental practitioner.

An elementary knowledge, at least, of the subjects of gravitation, heat, light, sound, electricity, magnetism, pneumatics, and hydrostatics can not be too strongly recommended for the student of chemistry. Information acquired of these topics will prove invaluable to the dentist in his daily practice. Since the educational requirements of prospective dental students is so limited that they are not expected to have much, if any, knowledge of physics before entering our dental colleges, I have long thought that these institutions would, by adding this branch to their curricula, take a very advanced step toward a better and more extended system of dental education. Some schools have done this, but I am not sure that it is sufficiently emphasized.



**Inadequate  
Preliminary  
Education.**

It is to be deplored that, though the educational requirements for entrance to most of our dental schools is very insignificant, some of them do not even inquire of the matriculant as to his capability of meeting these requisites. They thus shirk the responsibility imposed on them by the National Association of Dental Faculties, with the result that we have men entering the profession who can not read and write the English language with any degree of correctness. Our medical brethren can complain too of this sad condition of affairs. It should by all means be corrected, and the standard for entrance raised even higher than it is to-day, or else the burden of keeping up the high ideals of our profession will eventually fall upon the shoulders of a few men who love their calling and are loyal to its every interest.

It has been said that American dentists are the best dentists in the world, and when located in foreign countries are sought after in preference to all others. It is also said that our best cements are imported from Germany. Whether this last statement is true or not, I do not know, but I think you will agree with me that the German scientists, by their thorough knowledge and constant experimentation, have given us many things which, perhaps, would never have been discovered had it not been for their devotion to science and untiring energies exerted in promoting its interests. I am proud of the fact, if it be a fact, that the American dentist leads in operative and mechanical skill, but if we take these acquirements as our sole claim for ranking dentistry as a branch of one of the learned professions, we at once unprofessionalize ourselves, in that ours would no longer be "an occupation that properly involves a liberal education, or its equivalent, and mental rather than manual labor." We might just as well place engineers and mechanics generally among the learned professions as to rank dentistry with them if we fail to appreciate the necessity of having a high educational standard as a requirement for entrance in our dental schools, or eliminate any of the sciences that are now prescribed for our course of study.

Dentistry is conceded to be a specialty of medicine by the broadest-minded men of that profession, and is recognized as such, I believe, by the American Medical Association. Of course I am aware that there are many medical practitioners who believe that all there is to dentistry is "plugging" and "pulling" teeth, and making rubber plates. You can usually size up the calibre of the M.D. who knows no more than that about our capabilities. He is usually the fellow who knows just enough medicine to give calomel when the tongue is badly coated, administer morphia when his patient is suffering intense pain, ask a few questions, grunt in order to prevent showing his ignorance, and prescribe some patent or



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pharmaceutical preparation because the manufacturer of it says it will cure colic or is good for rheumatism. He likes to take a "pull" at all the teeth he can get hold of just to show his patients he can "pull" them, or else test the dentist's skill by leaving the roots for him to extract. I do not believe the higher class of medical practitioners will take offence at what I have said, because they have men in their branch of the profession of whom they are just as much ashamed as we are of some in the branch which we represent.

### **Value of Knowledge of Chemistry.**

A deeper and broader research and study of chemistry would not detract from our operative ability, but would materially enhance it, and would enable us to place our profession on a higher scientific plane, and command a greater respect from our brethren of the medical profession because of our ability as scientists.

Bacteriology, the use of the microscope, the study of histology, pathology, materia medica, and therapy are all better understood if we have a thorough knowledge of chemistry. Indeed it can not be dispensed with if we would really understand these other branches and give them practical application. I want to say, by way of parenthesis, that the discoveries which bacteriologists have made and are still making in reference to the causation of disease impose upon us the imperative duty of familiarizing ourselves with the bacteriology of the mouth, in order that we may pursue a scientific study of dental and oral diseases, and be capable of treating them intelligently and successfully. No fewer than one hundred different or apparently different forms and species of bacteria have been isolated from specimens procured from the human mouth, and we should acquaint ourselves with their study. To do this we must know what particular stains to use in the preparation of specimens, what chemicals best harden and preserve them, and how to make the different chemical tests to distinguish one bacillus from one another. This involves an adequate knowledge of chemistry. Only a few of these bacteria have yet been cultivated by artificial media, and the identity of many is very confusing. The profession awaits with interest the discoveries that may yet be made in this science. The question that confronts us is: Shall we, who are the most interested in these expositions, sit quietly by and expect others to do for us that which we should do for ourselves, and the doing of which would raise us greatly in the estimation of all educated people?

I am aware that this science is now being taught in our professional schools, but when many of us present were at college its value as a special study to the dentist was not recognized as it is to-day, and the germ theory was not so universally accepted. The young graduate, as he emerges from



the halls of his alma mater now, is thoroughly inoculated with this science, but we can not expect the infection to spread to the older men of the profession and our field of usefulness be improved, if they allow these germs of knowledge to be hermetically sealed from those influences and media that will increase not only the amount of knowledge they already possess, but disseminate it among others with ever increasing potency and usefulness. Neither can we, who had not the advantage of training in this branch, allow ourselves to become mere fungi and cling to others, deriving from them all our intellectual and scientific nourishment. We, too, have as our rightful heritage a part in this great work.

Dental and medical students, as a rule, look upon chemistry as a great bugaboo—something to be dreaded and something for which they expect to have no use in the coming years of an active practice. While it may not be so easily understood as some of our other branches of study, if we will but get the idea out of our minds that it is so very difficult to learn, and take up its study rid of all prejudice against it, I am sure it will prove very fascinating and profitable.

#### **Early Methods of Embalming.**

It may be interesting to notice something of the history of this great science. Of all the nations of antiquity, the Egyptians appear to have had the greatest chemical knowledge. As far back as four thousand years before Christ, the art of embalming their dead was practiced by these people, the bodies of Cheops and Mycerinus and others of the age of the fourth dynasty having been subjected to embalming processes. The embalming of the body of the patriarch Jacob is one of the earliest recorded instances of the preservation of the human corpse on record, and the body of Joseph was thus prepared and transported out of Egypt. Three separate and distinct methods seem to have been employed, one for the rich, one for those with moderate means, and the third for the poor, thus showing that their knowledge of chemicals and their therapeutic action was not confined to any one substance. After removing the brain the bodies of the wealthy were prepared by "passing peculiar drugs through the nostrils into the cavities of the skull, rinsing the belly with palm wine, and filling it with resins, cassia, and other substances." It was then steeped for seventy days in natron, which they obtained from margins of lakes by evaporation, and from the dried-up water-courses of Egypt. Natron, we find, is an impure sesquicarbonate of soda, and always contains sulphate of soda and chlorid of sodium. This substance either brought away or destroyed the viscera and soft portions, leaving only the cuticle and bones. The second process consisted of removing the brain, as in the first instance, but only injecting the viscera with kedron or cedar



## ITEMS OF INTEREST

oil, and soaking the corpse in a solution of natron for seventy days. The dead bodies of the poor were washed in myrrh and simply salted for a period of seventy days. Other nations employed different means, but seem to have been less successful. The Persians employed wax; the Assyrians honey; the Jews embalmed the monarchs with spices, the body of Our Lord being anointed with them according to their own method of embalming. This art was never lost in Europe, several methods being recorded, but no essential chemical discovery for this purpose seems to have been made until the preservative property of mercuric chlorid was made known by Chaussier, in the seventeenth century. Later, in 1834, Grannal announced his discovery of the preservative power of a mixture of equal parts of acetate and chlorid of alumina. The properties of arsenic and pyroxilic spirit and the antiseptic nature of zinc chlorid were made known by Babbington and Rees in 1839.

### **Pulp Mummification.**

Let us examine into the nature of some of these substances, because the alumina series of chemical compounds has a direct bearing on our own method of pulp mummification. Acetate of alumina is prepared by dissolving lead acetate and common alum in hot water separately, mixing the two solutions, and filtering off the insoluble lead sulphate which is formed. It is used very largely as a mordant by dyers, causing textiles to hold their color. The chlorid is obtained by heating a mixture of alumina and charcoal in a current of chlorine gas, and is used in the manufacture of the metal. Common alums are the most useful compounds of alumina, and are a series of double salts which aluminium sulphate forms with the alkaline sulphates. *Alumen exsiccatum*, with equal parts of zinc oxid and thymol, with glycerol and oil cassia q. s. to form a paste, is being used largely for the purpose of mummifying dental pulps. This process is called "foolishness" by some and a "Godsend" by others. Isn't it logical to say that if the Egyptians could preserve dead bodies containing the viscera by the application of palm wine, resins, cassia, etc., that we can to-day embalm the pulp with *alumen*, thymol, zinc oxid and cassia? Is the latter process to be considered impossible simply because it happens to be diametrically opposed to our former teachings that a dead pulp left in a tooth would putresce, mephitic gases be formed, setting up irritation that would be followed by inflammation and suppuration? Let us not be so foggy as to characterize this sort of treatment as foolishness and go to the extreme of asking our dental journal editors (as one man did recently) to keep all such "foolish" talk out of our periodicals. It is not foolishness, as he would have you believe, but it is the practical application of chemical knowledge obtained by experimentation.



**Early Chemical Knowledge.**

The Egyptians also fixed colors in silk by means of mordants, prepared many medicines and pigments, also soap, beer, vinegar, metals, and metallic alloys, sodium, chlorid, vitriol, soda, sal ammoniac, glass, enamel, tiles, and painted earthenware. The Chinese were also very early acquainted with the process of dyeing and the preparation of metallic alloys. They were also capable of manufacturing nitre, sulphur, gunpowder, borax, alum, porcelain, verdigris, paper, etc. The Greeks and Romans derived what chemical knowledge they possessed from the Egyptians, but added little or nothing to what was already known. The advancement of all science in Europe was stopped at the time of the overthrow of the Roman Empire.

Before the eighth century the prosecution of chemical knowledge was taken up by the Arabs, and researches were made by their scholars, the Alchemists, and by them was introduced into Spain, afterward being carried into other countries of Europe, where it "became speedily entangled with the fantastic subtleties of the scholastic philosophy." While they had many excusable errors in theory, the Arabs "were genuine practical chemists." They toiled at the art of making many medicines out of the various mixtures, and reactions of such chemicals as they knew. While they had their "mortars and pestles, their alembics and aludels, their vessels for infusion, for decoction, for cohabitation, for sublimation, for fixation, lixiviation, filtration, coagulation, etc., they labored with them, not with a view to discovering chemical properties of substances, but with only the hope of obtaining two great results—first, the secret of transmuting the baser metals into gold and silver, and, second, the means of indefinitely prolonging human life." It is to them, however, that we are indebted for our first work on this school, known as the *Summa Perfectionis*, composed by Cibber in the eighth century, and is consequently the oldest book on chemistry proper in the world. It is said to contain so much of what would sound to us like jargon, that Dr. Johnson ascribes the name of the word "gibberish" to the name of the compiler; and yet, "viewed in its own true light, it is a wonderful performance."

The term "amalgam" was first used by Thomas Aquinas in the twelfth century. Albertus Magnus during the same period introduced the use of symbols, and was very enthusiastic about the then new process of distilling spirits, declaring the spirit of wine to be the "very elixir of life." Basil Valentine, whose practical knowledge of chemistry was great, and who knew how to precipitate iron from solution, as well as many similar processes, ranks as the founder of analytical chemistry. He introduced antimony into medical use about 1394.



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While the labors of these alchemists have seemed to be but the "chasing of a will o' the wisp," and without any tangible results, there were some who were really meritorious, and to these we must give the credit of paving the way for genuine chemistry. It is interesting to observe that "the leading tenet in the alchemist's creed—the doctrine of the transmutability of other metals into gold and silver, a doctrine which it was thought at one time modern chemistry had exploded—receives not a little countenance from a variety of facts every day coming to light. The multitude of phenomena known to chemists under the name of allotropy," that is, the variation in physical properties shown by elements or their compounds without change of chemical composition, "are leading a speculative man more and more to the opinion that many substances hitherto considered chemically distinct are only the same substances under different conditions, or arrangement of their component molecules, and the number of really distinct elements may be few indeed."

### Modern Chemistry.

The first germs of a real science of chemistry appear about the end of the seventeenth and beginning of the eighteenth century, when Beecher, who "possessed an extensive knowledge of medicine, physics, and chemistry," promulgated the first theory of chemistry. He it was that first attempted to bring physics and chemistry into close relation, and sought to find the cause of all the inorganic phenomena in the world. By his investigations of the process of combustion, he enabled Stahl to announce his phlogistic theory some time later, which theory obtained universal acceptance until refuted and overthrown by Lavoisier. During the seventeenth century the science began to advance rapidly, and many important chemica laws were discovered. Geoffrey announced the first tables of affinities in 1718; Boerhaave published many original experiments on the chemical relations of heat and light in 1732; in 1724 and 1726, Hales and Black published, respectively, their researches on the air and aeriform bodies, differentiating carbonic acid evolved during fermentation, respiration, and by the action of acids on chalk, from atmospheric air. Alumina and magnesia were added to the then known earths, lime and silica, by Margraff in 1754-59, who also extracted sugar from plants. It was in 1770 that Priestley began making announcements of his discovery of oxygen, ammoniacal, hydrochloric, and sulphurous acid gases, etc.: and in 1773 to 1786, Scheele contributed chlorine, hydrofluoric, prussic, tartaric, and gallic acid, also baryta, phosphoric acid obtained from bones, and gave out the first hint regarding a new doctrine of combustion. About this time Bergman and Cavendish made additional contributions to the knowledge of gases. Between 1770 and 1794, Lavoisier reorganized much of the then known chemistry, "and founded a system of chemistry



which to-day remains as the framework of the science." Berthollet, in 1787, contributed much to the doctrine of affinity, and made researches in chlorine. Organic chemistry was advanced by Fourcroy and Vanquelin, and many contributions were given to mineral chemistry by Klaproth. Richter devoted himself to the doctrine of combining proportions, the atomic theory being afterward perfected by Dalton. Sir Humphrey Davy, and others, were led to make important researches in the metals and gases by the discovery of galvanic electricity by Galvani, and its further advancement by Volta. The knowledge of organic substances and chemical relations of heat was broadened by the work of Gay Lussac and Thenard, and Berzelius by his laborious researches in mineral chemistry "gave an exactness to this department which is an astonishment to the chemists of the present day." He was also the author of the electro-chemical theory, which has later been almost perfected by the labors of Faraday and others. In more recent years, organic chemistry has been very much advanced, and most rapidly too, through the labors of such men as Liebig, Whohler, Mulder, Laurent, and others, until to-day we have a science which seems so nearly perfect that we may feel there is nothing within its realms left for us to discover. Let us remember, however, that the summit of perfection was thought to have been reached some twelve hundred years ago. It may be after all that many important discoveries are yet to be made, and it is for us, as a profession and as individuals, to contribute our share of the brains, coupled with intelligent and well-directed effort to get out of the science by experiment and research any latent truths that may still be lurking within its mysterious confines.

**Dental Chemistry  
and Remedies.**

I trust I have held your interest while recounting this bit of history. There is a broad field of labor for the dental chemist. The finding of an insoluble and durable dental cement is to the dentist to-day what the "Philosopher's stone" was to the alchemist centuries ago, and there is a greater chance of success in the discovery of this substance than was ever held out to those men.

There have been so many changes and additions in the latest United States Pharmacopoea, that, while they affect the physician and pharmacist more largely, are to a very great extent of interest to the scientific dentist. Permit me, then, to briefly review a few of them.

Because a large number of remedies, synthetic in their nature, having the same chemical identity and therapeutic action, were being marketed under various commercial names, it was thought best to give them official recognition, and names approximating as closely as possible their true chemical name or its synonym. This enables us to know the therapeutic action of these compounds by their chemical formulæ. Those



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remedies not having a definite chemical composition were given titles in harmony with general usage, and convenient for prescribing. "Aristol" has been admitted as Thymolis Iodidum, a name showing that it is an iodine compound of thymol. This method of using the true chemical name has been extended to a large number of preparations already officinal whenever practicable. "Acidum carbolicum" is no longer approved by these changes in chemical terminology, but we are to use the term "phenol" in its stead. The composition of "salol" is also shown by its new officinal name, "Phenylis Salicylas." Extracta Fluida now becomes Fluidextracta, written as one word.

The old teaching—that *-ic* acids make *-ate* salts and *-ous* acids make *ite* salts—has undergone considerable transformation. As an instance of this, cocaine hydrochlorate is now called cocaine hydrochloride. Being desirous of learning why these changes in terminology were made, I wrote to Merck & Co., of New York, and quote you their letter bearing upon this subject *verbatim*:—

"As you are doubtless aware, there are two classes of salts, those in which the hydrogen of an acid is replaced by some metal or metallic radical; and secondly, those in which there is direct union between the acid and the base. For instance, in hydrochloric acid, the H may be replaced by, let us say, sodium, when we obtain sodium chloride, not hydrochlorate. On the other hand, when we combine an alkaloid, let us say quinine, with hydrochloric acid, we get quinine hydrochloride, not hydrochlorate, because this latter term can be considered as applicable only to the compound of quinine with chloric acid. To make the matter clear, it is merely necessary to state that the hydrogen in the  $\text{HCl}$  as well as the  $\text{HClO}_3$  remains, and is not replaced by the quinine radical. The same applies to hydrobromic acid, hydriodic acid, etc. Consequently if we speak of quinine hydrochlorate, etc., we imply a compound of chloric acid, for example,  $\text{C}_{20}\text{H}_{24}\text{N}_2\text{O}_5\text{HClO}_3$ , and not the hydrochloride which has the formula  $\text{C}_{20}\text{H}_{24}\text{N}_2\text{O}_5\text{HCl}$ . Again, quinine chloride would have the composition  $\text{C}_{20}\text{H}_{24}\text{N}_2\text{O}_5\text{Cl}$ . Naturally, if the hydrogen remains attached to the quinine, the salt should rationally be considered a hydrochloride."

There have also been many changes in strengths of certain preparations, which, of course, affect their dosage. This has been for the purpose of making the different heroic remedies of uniform strengths in the pharmacopoeas of the different countries. Some have been increased and others diminished. Information regarding the different changes may be had by securing Bulletin No. 23 from the Hygienic Laboratory, Public Health and Marine Hospital Service of the United States, at Washington, D. C.



Since my subject was assigned me, I find that the section for which I am reporting includes therapeutics, and though I have been somewhat lengthy in my remarks, I shall close this paper with a few practical suggestions on the use of some remedies it has been my pleasure to exhibit, following the recommendation of other practitioners in several instances.

**Dental  
Therapeutics.**

In hemorrhages from tooth extraction, from the pulp or gingiva, during the preparation of roots and teeth for crowns, adrenalin chlorid applied on a pledget of cotton usually controls it readily. I never use Monsel's solution, or persulphate of iron, under any circumstances. Neither of them need ever be tried but once for this purpose to warrant condemnation by any one.

A recent writer advocates closing the apical foramen of teeth with a few fibers of cotton moistened with tincture iodine and then dipped in tannin, or tannic acid, as it is more commonly but erroneously called. He claims that the cotton would harden, thereby completely closing the foramen, and that the iodine and tannin would exert beneficial influences on the contents of the dentinal tubuli. In this connection I wish to say, I have found that this combination, on exposure to the air, does harden, and the iodine seems to lose its usual property of corroding steel, but in the light of the following experiment by Magitot, I believe this process should be more closely considered before using it:

"A tooth was placed in a solution of tannin, 1 to 100, the container hermetically sealed, and allowed to remain for two years. At the end of that time the enamel showed to have suffered no ill effects; it kept its polish, but was covered with a light deposit of greenish coloring matter. The cementum, however, 'showed marked softening, was easily penetrated by an excavator,' and assumed a light-brown color." I intended making some experiments to ascertain whether the combined action of iodine and tannin would affect tooth structure with tannin held in solution by tincture of iodine, and also the preparation recommended as before stated, but time forbade any definite conclusions in time for insertion in this paper.

We all have our cases of pyorrhea, and I presume most of us have accepted the uric acid theory as a cause for this disease. In troubles of this kind, after cleansing the teeth thoroughly, washing out pus cavities with hydrogen peroxid, I prescribe as a mouth wash "liquid antisepticus," and give internally thialion, a teaspoonful in cup of warm water three or four times a day, until catharsis is produced, then fewer doses per day. Thialion is a laxative salt of lithia, and is very efficacious in all cases of uric acid excess.



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*Thuja occidentalis* has been recommended for the removal of epulidæ before they have reached the sarcomatous form. It is claimed that if the epulis be injected with this preparation two or three times a week it will frequently disappear.

I have tried Cataplasma Kaolini, a preparation of clay and glycerine, and which is marketed under the names of Antiphlogistine, Depletant, etc., in cases of incipient abscess, by applying it warm to the cheek of the patient, holding it in position with a surgical bandage, with gratifying results. Inflammation is usually reduced in this way and the abscess aborted.

**Formalin**  
**in Pulp Canals.** Formalin, which is a forty per cent. solution of formaldehyde, may be used to advantage in treating putrescent pulps, but care should be exercised to prevent its coming in contact with the tissues of the mouth, on account of the intense burning sensation which it produces. You should also refrain from flooding the canals and attempt to dry out same with hot air, as the gas generated will cause considerable discomfort to the patient and yourself by inhalation and its irritating influence on the eyes.

Dr. Dorr presented his method of treating putrescent pulps in the April number of the *Dental Brief* with "solidified" formaldehyde, and, while I have not used this particular method, my experience with formalin leads me to accept his ideas as being perfectly correct. Briefly, his manner of operating is this: Where the pulp has putresced, open up the pulp chamber well, "clean out as much of the *debris* as possible, syringing frequently with tepid water, care being taken not to enter the canals." After drying the cavity, place a small piece of the formaldehyde in the pulp chamber, cover it with a pledget of cotton, and seal same with temporary stopping. Cement should not be used on account of its porosity. It may be necessary to place a particle of the preparation at the opening of each canal in multi-rooted teeth, before placing the final application in the pulp chamber. It may remain in the tooth from twenty-four hours to ten days, according to Dr. Dorr, without injurious effects, and when removed there is no longer any odor of putrescence, and no tenderness is found on percussing. The theory is that "there is enough heat and moisture in the tooth to liberate formaldehyde gas, which is forced into the pulp canals, thoroughly sterilizing all of the dead pulp tissue, together with the walls of the canals to the very apices, thereby eliminating all danger of infection of the regions beyond."

**Chloral**  
**Hydrate.**

A physician in my town recently called my attention to the very happy results he had obtained from the action of chloral hydrate for relief of pain after extraction of tooth by placing it in the dental socket.



This action of chloral, or its hydrate, is very probably due to the fact that it is decomposed by weak alkalies into chloroform and potassium formate. Normal blood being alkaline, as is also normal saliva, we can see why and how this reaction may occur.

I do not believe we dentists, as a rule, give enough attention to the diagnostic value of the study and examination of the oral secretions of our patients. Under the influence of pathological conditions during the continuance of general acute affections of the body, it has been shown by Magitot that immediate phenomena are produced, by reflex action, upon the mouth, which are more or less complete suppression of the salivary liquids, while there is at the same time an increased amount of mucous. The condition of the saliva is, in a very large measure, responsible for the condition of the teeth. I have just said that normal saliva is alkaline, but I do not mean to convey the idea that its reaction should show a super-alkaline condition.

I hope I have not wearied you, for while what I have had to say has been to some extent what the editor of the *Cosmos* would, perhaps, term "a repetition of history in dental literature," I appreciate the fact that these repetitions often impress the subject-matter upon our minds, and enable us to store it up for future use.

NOTE: In the preparation of this paper I have consulted the following authorities: Garretson's Oral Surgery, Marshall's Op. Den., Imperial Encyclopedia, U. S. Dispensatory, Roscoe's Chem., Mitchell's Chem., Simon's Chem., and Bulletin of Phar.

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## The New Era in Dental Prosthesis.

By DR. W. B. DILLS, Brooklyn, N. Y.

*Read before the New Jersey State Dental Society, Asbury Park, N. J., July, 1906.*

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It is within a comparatively short time that the term "dental prosthesis," has applied to those branches of our art of a purely mechanical nature. The same might be said of the new era in dental prosthesis inasmuch as a large portion of the operations necessary for the preservation of the teeth have become part of the laboratory work. The placing of any filling in a tooth though it be accomplished entirely in the mouth is without doubt mechanical, though it has been included within the sphere of "operative dentistry." I feel that the day has arrived when the two have merged into one, hence the new era in dental prosthesis.



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I think it is a fact well recognized by many of our most prominent men, that the preservation of teeth is best accomplished by the making of the filling in the laboratory and cementing to place. I am not depreciating the skill possessed by thousands of our confrères but I do feel that we are living in a time which demands the abolishment of all unnecessary labor.

A careful survey of the patients who present themselves to you will show an average deterioration in work over that of twenty years ago. The people themselves will not give the time for protracted operations. It is a noticeable fact that parents that have submitted in the past to operations of from two to three hours each, will not permit their children to endure similar strain, and, as a consequence and in the natural evolution of all things, we have entered into this new era which promises to supplant all past methods.

**Advantages of  
Cemented Fillings.** The advantages are many, such as the very large decrease in physical strain, both upon patient and operator. Second: The elimination of at least fifty per cent. in time. Third: The possibility of preserving much more fragile teeth substances than in any other way. Fourth: The elimination of a barbaric display. The fifth is a point which appeals to all of us. I would ask if it is possible under the old method or present method of plugging gold foil to acquire more than a bare competency. How many of our noted men in the past have left enough for the liquidation of their obligations? Why? Because the possibility of one pair of hands is limited, and unless the individual is shrewd and fortunate in outside investments, it is impossible for him to earn much more than that required for the maintenance of himself and family in a style and social position demanded by the public. The introduction of porcelain and gold inlays increases a dentist's earning ability three to five times as much for the reason that a large share of the work may be done by a mechanic in the laboratory, which gives the operator time to increase his income to about the proportion named; and I sincerely hope that methods may be devised simpler than those existing, to still enlarge these possibilities.

From a personal experience and an observation of that of others I am satisfied the public will pay proportionately very much more liberally for such service than for the old. Here are five points which if sustained must eliminate any possible argument against the general adoption of the new methods.

It is not my purpose to delineate positive or exact methods of procedure, but rather, if possible, to give you the benefit of a personal, practical and clinical experience in pursuing the general technic of



cavity preparation and mechanical procedure for the perfect inlay filling, I am not egotistical enough to believe that my method of procedure is the only one, but I am thoroughly convinced that the results obtained are beyond question equal to that of any known at the present writing. It is a well known and established fact, that complication in any operation is a barrier to its ultimate success notwithstanding which the multiplication or addition which is to follow make it the least in the selection of two evils.

**Inlay Methods  
Compared.**

Let us take for instance the original procedure, that of burnishing the gold to the cavity to form a matrix for a porcelain inlay and admitting that the results are perfect we have a possibility of one perfect inlay filling, that is to say, in its adaptation to the cavity. If, by chance, which is often the case, the color is defective it is necessary to subject the patient to the discomfiture of having another matrix burnished to the cavity and the chances are even that the next one will be imperfect, which means if the color problem has been solved a probable remaking of three or four inlays before securing one of perfect adaptation. On the other hand with the impression method if the cavity is properly prepared and a perfect impression secured, and when I say a perfect impression I mean it literally, the operator is free to experiment in color and contour, without subjecting his patient to the discomfiture necessary under the old method.

There is another and very important factor in this connection, and that is the possible warping of the matrix in fusing the inlay the result of which is more than disagreeable to both patient and operator. On the other hand the impression method eliminates this entire proposition, and assures the operator of a result which is absolute and final; understanding, of course, that much is due to the proper preparation of cavities; but it is not my purpose to lay down fixed rules for cavity preparation.

**Cavity  
Preparations  
for Inlays.**

It is in self protection that I delineate the principles on which all cavities are formed to obtain a perfect impression. It might be said that the same care and precaution are necessary to obtain a matrix from a cavity direct, but a careful analysis of the two propositions will convince you that there is as much difference as there would be in placing a gold foil or amalgam filling. In either event the cavity must be so shaped as to permit a free draught, which in reality is the only point of similarity in the two methods.

In the original or burnished method, it is necessary to have excessive separation or sacrifice tooth structure unnecessarily; while with the



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impression method and proper cavity preparation there is no separation required other than for the ordinary gold or amalgam filling.

In the old days when gold foil was predominant tooth structure was sacrificed for its introduction regardless of its appearance. On the other hand, to-day, when porcelain is used to hide the art of the dentist every effort is made, or should be, to preserve as much as possible particularly on visible surfaces.

Let us take for example the cavities in the incisors or cuspids: if the preparation is made from the palatal or distal surfaces two very marked points or advantages have been gained. First, in appearance even though the color has been accurately matched there remains the all important or essential feature that the filling or inlay has the stress of mastication or wear in the direction of its maintenance in the cavity; and this is a rule that must be observed in the preparation of a cavity for a cemented filling whether it be porcelain or gold. This takes me back many years, not from personal experience but in reading and hearing older practitioners tell of their experiences in the cementation of not only gold but amalgam fillings, inserted without suitable anchorage, and later falling out to be reinserted with oxyphosphate cement, and lasting for many years.

I want it distinctly understood that I do not depreciate the value of gold or amalgam as a filling material, but I do just as distinctly want it understood that the possibility of saving teeth is one hundred per cent. better with a cemented filling than with the old methods. First, because the gold plug must have suitable anchorage or walls to sustain or maintain it; in other words, the tooth must hold the filling. The same can be said of amalgam or gutta percha. On the other hand any of the cemented fillings will support the tooth itself; frail or fragile walls can be made to last indefinitely. In other words, the procedure and results have been practically reversed and instead of the tooth holding the filling, we now make the filling hold the tooth.

I consider myself exceedingly fortunate that I have entered upon my professional career at the end of an old and well tried era and at the beginning of a new which promises more scientific results than had been supposed possible. With all due respect and appreciation for the skill and proficiency of my predecessors, I can but feel that the new era of "dental prosthesis" opens up a field which if intelligently pursued means the lifting up of dentistry to a plane beyond which there is no higher.

This brings us nearer to an exact science than was ever thought possible, and while there is bound to be an individuality in all operations, at the same time there are fixed laws of dynamics. It puts all men,



regardless of skill, practically on a level, not forgetting that dental pathology is an important factor and a line of demarkation in the success of a practitioner. Notwithstanding which the percentage of cases where pathology is a factor is small; the all important or prominent factor is a man's ability to save teeth by filling independent of any pathological condition. By this I mean that the mechanical or dynamic proposition is the all important, not depreciating the pathological condition that may exist and often does. There would be little or no success if the operator were deficient in knowledge of dynamics, while pathology plays a very important part in the successful practice of so-called "operative dentistry."

This brings us to a delineation of methods and procedure of technic in the preparation of cavities for the reception of inlays whether they be porcelain or gold. I claim no originality or priority in the following procedure but am giving what I have been able to compile from that of several or all of the conceptions of many good operators throughout the country.

There is one rule which must be observed in the preparation of a cavity, namely, that of a suitable draught whether it be for the impression or burnished method. Another is to preserve all of the tooth structure possible in the anterior or buccal surfaces. Color can be so closely matched that it is hard to detect a difference. Still the provisions of nature should be preserved wherever possible, for instance in the preparation of cavities on the approximal surfaces of the six anterior teeth even though the walls be thin and the ravages of decay extensive. The sacrifice of structure should be always upon the posterior or palatal surfaces and the formation of such cavities should be with a view to as nearly a mechanical retention as possible and here I make emphatic one of the most important features of inlay retention which is that of a body of cement sufficient for strength and adaptation; in other words a filling or inlay which fits or fills the cavity is not as serviceable nor can it be relied upon as well as one in which the inlay is perfectly adapted to the margins and a suitable or sufficient space is left for a body of cement in its adjustment.

I believe Dr. Jenkins advocates a perfect preparation of the cavity margin independent of the caries existing; and says that the matrix may be taken and later the cavity excavated, which provides for the space necessary in the cementation of the filling. This I take exception to, as there are cases when there are very fine veins of caries that might undermine or weaken margins. On the other hand if a cavity is thoroughly excavated the margins can just as satisfactorily be formed and if under-



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cuts or drags exist it is a very simple matter to fill in with gutta percha stopping to form a suitable draught for the securing of a perfect matrix or impression.

Summing up I find porcelain the nearest to an ideal filling of any that has yet been devised. That it is not applicable to all conditions is beyond question but where it fails gold is indicated. By this I mean gold inlays not gold foil; and as a finale I want to put myself on record as believing the only true filling is the one made out of the mouth and cemented to place.

### Gold Inlay Methods.

A careful study of the different methods of making gold inlays, including those of Dr. Hinman, Dr. Nyman, and Dr. Wassel, has resolved itself into a method which I here give as the most practical and certainly simple for the restoration of lost tooth structure.

I have found that platinoid 28 or 30 gauge makes a most excellent cup or form for the retention of the impression material after preparing the tooth with suitable draft for an impression and the proper setting of an inlay. It can be easily cut to shape with an ordinary pair of scissors, and bent so as to conform to the contour of the particular requirements.

The "Perfection Compound" is used which is manufactured by the Detroit Dental Manufacturing Co. It is first rolled into pencil or stick form which permits of cutting after slight warming. The platinoid having been cut and bent it should be heated in the alcohol flames so that the compound can be made to adhere perfectly to its surface so that when withdrawing the impression they will come away together. In such cases that have been protected by the rubber dam the cavity should be coated with a thin vaseline that the cup and compound may be removed with a perfect assurance that after its solidification it may be removed with the slightest danger of any distortion.

Having secured an accurate impression in this way the same is invested in plaster the surfaces of which are exposed that amalgam may be packed and burnished into the mold, producing a practically perfect reproduction of the cavity. The amalgam should be mixed thin and the mercury worked out, as you are filling in the mold, and allowed to stand over night. This amalgam die is taken out of the plaster and imbedded in a composition called "Dental Lac," contained in one of the cups of the Brewster water press.

Now adjust a piece of pure gold 34 gauge over the die, and press it down into the cavity with a piece of spunk and burnish. Take it out, trim and anneal it and replace on the amalgam die. Put a piece of spunk in the center and place in the swedger and swedge and trim to about 1 mm. of cavity margin and anneal and reswedge. Fill the matrix with any quick



setting cement. After filling matrix with cement put in the mouth and instruct patient to bite while the cement is still soft. Take out and trim to occlusion and contour, and around the edge trim below the enamel margin, about the depth of the thickness of the piece of gold that you are to swedge for the top piece. Replace on amalgam die and swedge the top piece of 36 gauge pure gold; trim away to the line where you are to unite the two pieces and anneal and reswedge.

I now sparate the two pieces and usually find upon tapping the matrix that the cement will drop out very readily; if not catch the matrix with the foil-carriers and tap them once or twice. The cement will drop out whole so that you can have it at any time to straighten out the matrix if distorted in any manner.

I cut from the matrix a half or a little more out of its center keeping equally away from its margin in accordance with the shape of the cavity. In cutting out this hole, I may distort the matrix somewhat. If so I anneal it and replace into amalgam die and burnish well to place, reswedge and unite the two pieces over the Bunson flame at one point only with 22K. solder and a little powdered borax. Try it in the amalgam die and see that the two pieces have a close contact all around. Then finish with 22K. and fill in with any lower karat solder leaving enough space inside to act as an under-cut in retaining the filling. Set in the tooth and allow cement to harden.

All the finishing is done with the exception of running a disk over the edges and polishing with a brush wheel.

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### "Cements."

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By ROBERT HOMER WELSH, D.D.S., New Orleans, La.

*Read before the Louisiana Chapter, Interstate Dental Fraternity, November, 1906.*

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In my investigation of the subject I was greatly surprised to find that the cements we use have been subjected to very much less thorough scientific investigation than the importance of the subject warrants. I found few articles on the subject and these by a few authors who seem to do all the writing and investigating. A fact that we all agree on, is that cements are not what they should be and but few if any are trying to make them better except one or two enterprising manufacturers. That cements as we now have them possess in many respects valuable qualities as filling materials there can be no doubt. When the ideal cement is known we will find it neither expands nor contracts, that



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it is impervious and resistant to oral fluids; that it withstands attrition; that it neither attacks the substance of the tooth nor exercises any irritating influence on the pulp tissues; that it will be in color and translucency similar to the teeth; that it will be quick setting and easy of manipulation and perfectly hydraulic. Can you picture, for a moment the effect of such a filling material on the practice of dentistry?

### **Composition of Cements.**

The only solvent for oxide of zinc which gives anything like desirable results is phosphoric acid. This acid exists in three forms, viz.: ortho, pyro, and meta-phosphoric acid. As ortho-phosphoric is the one yielding the most enduring metal salts it is the most suitable for our purpose and probably all the modern or recent cement productions are modifications of the simple formula of this acid in combination with zinc oxide. In the past the modifications of ortho-phosphoric acid were generally produced by the addition of certain definite quantities of the meta or pyro-phosphoric acid for the purpose of retarding the setting and diminishing the production of heat caused by the reaction. The addition of meta-phosphoric acid to ortho-phosphoric acid is to be condemned since true meta-phosphoric acid can be maintained in a liquid state only by the addition of alkaline phosphates which in themselves are soluble in normal saliva. Hence the rapid disintegration observed in some of the early makes of cement, some of which are still on the market. The more scientific and modern productions of the necessary modifications of ortho-phosphoric are produced by a partial saturation of the acid, by oxides and non-alkaline phosphates. The powder is composed of pure zinc oxide pigmented to the desired color with the various metallic oxides and should be ground to a very great degree of fineness.

### **Uses of Cements.**

The different uses that we may make of cement are too numerous to mention. It is used to start gold fillings and retain the gold while packing; when mixed very thin, it is valuable in repairing plaster models; for setting inlays, in which case, finely ground powders should be used as they make closer joints and crystallize more quickly; as an intermediate under metal fillings; supporting frail tooth walls; setting crowns, bridges, etc. In those conditions which we meet, where cement is occasionally indicated either through lack of time or inability of the patient to submit to permanent operations, our method of cavity preparation is entirely different from that of permanent work. We leave all frail and overhanging walls and perhaps a small portion of infected although not *softened* dentine. The cavity under these conditions should, of course, be sterilized with a cauterizing, non-staining disinfectant, such as colorless tri-cresol and formalin, equal parts, it being understood,



of course, that all traces of this solution are to be removed from the cavity either by applications of hot air or repeated washings with distilled water before the cement is inserted.

The placing of silver nitrate under cement seems to impart hardening or preserving qualities on the cement while not interfering with its adhesive qualities; at the same time it retards or prevents future decay of tooth structure; therefore I consider it advisable wherever discoloration is not objectionable to apply it before inserting the cement, the percentage of solution varying according to nearness of pulp.

Zinc oxy-chlorides are not generally used because of their slow setting properties and lack of resistance to attrition. Straight zinc oxy-chloride is valuable as an intermediate under metal filling, for its therapeutic properties, it being my unvarying custom to use it over root fillings of all descriptions.

**Manipulation  
of Cements.**

An excellent method of adapting cement to the cavity walls is to take a small bit of the mix at the thick, creamy, or crown-setting stage, and line the walls, which can be easily done, as at this stage it almost flows to place; the rest must be mixed as stiff as possible.

When this stiff mix is packed in it displaces most of the thinner mix thereby assuring perfect adaptation. This I consider a very important point, as very often, when inserting a filling, the cement is inadvertently pulled away from the bottom of the cavity, or margins of same, with instruments, especially cement mixed to the creamy consistency. In setting dowel crowns we find gelatine tubes a valuable adjunct in carrying the cement to the end of the canal. In placing cement in fine canals a small loop on the end of broach will be found to carry the globules to the end better than any other method. To overcome the reflection of inharmonious colors of cement through translucent enamel the lighter colors of the powder may be pigmented with metallic oxide to give the desired tint, as for example, a light gray may be dark in proportion to the quantity of copper oxide used.

**Undesirable  
Properties of  
Cements.**

When properly mixed I do not consider cement dangerous to the pulp; our trouble usually comes from an excess of acid and nearness to pulp. It has been claimed, that the natural condition of the pulp is alkaline and when fluid is placed on the other end of the dentinal tubuli you produce an inward osmosis; so that the phosphoric acid reaches the pulp chamber and that this produces irritation and death, faulty manipulation or mixing, causing the unnecessary excess of liquid. It is claimed, that this can be avoided by lining the cavity with varnish or gutta percha in solution, but at a sacrifice of the adhesive



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properties of the cement. Nearly all commercial preparations of zinc oxide contain arsenic, this latter agent being constantly associated with zinc ores in nature; but it is claimed by the manufacturers that the high heat to which they are subjected in the calcination process causes the arsenic to enter into combination with the zinc forming zinc arsenite, rendering the arsenic inert.

Pain in inserting will usually be in proportion to quantity of fluid in mix, but in quick setting kind is increased by the heat generated in chemical union or crystallization. We must not expect too much from cement, we should use it with discretion, not abuse it, and not fill over decalcified dentine, expecting it to do impossibilities.

### Method of Mixing Cement.

There should be just enough powder added in small portions to the liquid, thoroughly spatulating each portion until a homogeneous mass is formed.

For fillings it is best to mix as stiff as possible; for crowns, bridges and inlays, as stiff as will permit of the piece going to place. Too little spatulation gives a quick setting granular result and over spatulation gives a cement which will never properly crystallize. All cements have their peculiarities, and before any one is used a perfect comprehension should be had of all its peculiarities, by experimentation, out of the mouth. The method of incorporating as much powder as possible in an effort to produce a very stiff or putty like mix that can be kneaded between the fingers is to be condemned not only from the fact that an imperfect mix is obtained but water of crystallization will be absorbed during contact with the fingers.

Using a flat-sided bottle filled with either hot or cold water for the purpose of retarding or hastening the setting of a mix is to be heartily condemned for the same reason given above, that is, absorption of water of crystallization.

In mixing cements I have found a large porcelain slab, in combination with a large, thick, almost convex shaped metal spatula, best adapted for the purpose.

The slab and spatula should be immaculately clean before commencing a mix; if for no other reason than the fact that one crystal of a kind will hasten the formation of other crystals, thereby in the end, ruining or very much impairing the usefulness of the cement after mixing.

### Setting Qualities of Cement.

The fineness or coarseness of a given powder decides or fixes the rapidity of setting. A coarse powder with a given phosphoric acid will be slow of setting and the same powder reduced to a finer state will set more quickly in proportion to fineness for the simple reason that there is more surface of the oxide granule exposed to the



action of the acid. Pigmenting with the metallic oxides to change the color retards the setting in proportion to quantity used. Thin liquid gives quick setting properties and is best suited to a dry, cool atmosphere; and the slower setting or thicker liquid is best adapted to a tropical atmosphere.

**Preservation of  
Cement.**

The tendency of phosphoric acid to crystallization in a dry, warm atmosphere and to absorb water in a humid atmosphere is so great that it calls for much care in its handling during consumption. We should keep our liquid for daily use separate from the supply bottle, and the best way to keep it is tightly stoppered in the S. S. W. office preparation bottle, No. 6. Vaseline the joint, thus rendering it air tight and making removal of cap always easy. The liquid may be easily removed by the use of an Ames dropper, made to keep in the bottle and great care should be exercised not to get any liquid around the joint.

**Spatulas.**

Non-corrosive spatulas should be used, preferably those made of high grade German silver; and I dare say, these are more widely used than any other, but they offer a serious objection owing to the proportion of nickel and zinc and sometimes iron used in their manufacture; all these metals are easily acted upon by the acid of the mix and therefore become very detrimental to same. It seems to me that if we are to use a metal spatula, one made of iridio-platinum is the best combination for this purpose and when the blade is so made that it can be fitted into a socket handle is not necessarily too expensive, especially when we consider the lasting qualities and results to be obtained.

For mixes, when a slight modification of color is not objectionable, spatulas made of silver and copper alloy combined to give the maximum rigidity and hardness would be beneficial from a chemical standpoint supposing that a slight abrasion and chemical action should occur, thus producing phosphates of these metals which have a salutary effect, whereas *phosphates of iron and nickel* which are necessarily formed when a *steel* spatula is used are very detrimental.

Bone spatulas are to be condemned as the bone grinds off and becomes part of the mix. I have used spatulas made of thick orangewood or other non-porous wood where I was particularly anxious not to change the color of a mix, I must say, with much satisfaction. However, this method is not to be recommended for general use as I do not think we can get as thorough spatulation as when a metal spatula is used. I am now using an agate spatula and an onyx slab and can feel sure that my mix is not contaminated.



## ITEMS OF INTEREST

**Slabs.** Glass slabs are not advisable for the reason that in a short time after using them their surface becomes rough due to the wearing away of same during the process of mixing, the small particles at the same time incorporating themselves with the mix. Oiled paper has many disadvantages as a surface to mix cement upon, hence this method is to be condemned.

For general use a large porcelain slab at least six inches square and one-eighth to one-quarter inch thick that has been especially glazed on the surface will be found most satisfactory. The writer has just commenced to use an agate slab and believes that he will have perfection in its use.

When cements are chemically pure and mixed in the right proportion there is but slight disintegration caused by saliva. When disintegration is most marked we find an acid condition of the saliva.

**Oxyphosphate of Copper.** Of oxy-phosphate of copper Ames says we find characteristics peculiar to the material and differing from zinc oxide cements; for instance, that the maximum density is obtained from a creamy mix rather

than from a stiff or putty like mix as is the case with the zinc oxy-phosphate. With these cements there is obtained a decided embalming effect of semi-decalcified dentine and of thoroughly decalcified dentine which is peculiar to copper salts. These materials are extremely bland when used near the pulp or in contact with gum tissue, and seem to have a very salutary effect upon inflamed pulp or gum tissue, but they cause severe pain to both at first contact. Treating a large buccal cavity for instance, into which the gum has over-lapped and become angry and ragged the gum will shrink away, and take on a condition where it is rather difficult to start a hemorrhage. You really have to lacerate the tissue before there will be a flow of blood and the effect of the contact with gum tissue is such that in a multi-rooted tooth where there has been extreme recession of the gum and a pocket at the bifurcation of the roots this space can be literally filled with the straight "original" oxy-phosphate of copper and cause a shrinking of the tissue, and also the correction of the tendency to suppuration to such an extent that the tissue becomes healthy and suppuration ceases. Many cases of active pyorrhea have been cured by this simple method. The material has the property of taking up a slight trace of moisture which may be present and will adhere to a plain surface after being made only reasonably dry doing away with the necessity of undercuts entirely.

It is especially useful for filling the open fissures of newly erupted permanent teeth, that is, first, second, or third molars, which can be done



with very little preparation and is a most useful material for filling cavities in deciduous teeth because of its embalming properties and because a trace of moisture will not interfere with its adhesion. The setting process is so rapid when it is properly mixed that submersion soon after insertion does no damage.

Many other uses might be mentioned, so many, that to me and to others it has seemed that if it were not for the color of these materials there would be little excuse for any other cements.

I lay claim to no originality in this paper, I am indebted to many writers in our dental journals and especially to Dr. W. V-B. Ames, of Chicago.







**New Jersey State Dental Society, Thirty-sixth Annual Meeting.**  
**Discussion of Dr. Dills's Paper.**

**Dr. Stockton.** I certainly am very grateful to Dr. Dills for his very able paper and for the central thought in it, that the ideal filling of the future is to be a porcelain or gold inlay cemented in. It appeals very strongly to the operator and more strongly to the patient. Many of you who are enthusiasts, after starting a filling have had your enthusiasm grow until after a little while you were so wrapped up in the beautiful work you were doing and which you pictured in your minds' eye, that you utterly forgot the patient. I have in mind now a lady (I am glad to say a patient of another enthusiast and not of myself), whose health I fear has been permanently destroyed by the enthusiasm of her dentist; he kept on filling and filling teeth and making appointment after appointment until to-day, through the nervous strain of it all, that lady has been compelled to break up her home and go to a sanitarium. Her husband told me they were almost afraid her mind is permanently impaired. The dentist forgot everybody but himself; his idea of the beautiful filling was before his mind and all thought of the patient was gone for the time being.

**Dr. Chase.** Like Dr. Stockton I have nothing but praise for Dr. Dills's able paper. He has shown us an easy method of doing what were formerly regarded as very hard operations in putting in gold fillings. He has described an operation not only easy for the dentist but for the patient, and he has struck the keynote in speaking of inlays; inlays are not on the wane but on the increase. Also he struck the keynote in speaking of the care of our patients and the ease with which we can operate for them; the less



## SOCIETY DISCUSSIONS

pain, the less discomfort we give out patients the better they will like us and the more patients we will have. Not only that but it will not decrease the fees that we receive; on the contrary it will increase them. And we will not be breaking down early in life through doing large contour gold operations, finishing them up, making all of them like pieces of jewelry. You have seen the consequences as Dr. Stockton has picture them to you of doing these operations so thoroughly.

I desire to thank the Doctor personally and to assure him he has given me ideas which I will try and profit by.

I would like to say I have used this method very extensively and while I differ with the essayist a little as to the technique the results have been very satisfactory. Gold inlays are indicated in molars where you must insert a large filling. Very frequently you have patients whose mouths are filled with very beautiful work but the molars are so much decayed that you are forced to use amalgam. That is where these large gold inlays are indicated and you get very satisfactory results. They will stand the strain of mastication and the cement which is used to hold the filling in is a support to the tooth. You ordinarily put a little plug like an amalgam filling or a built-up gold filling in the tooth and while it stops up the hole it does not support the tooth.

I depend very largely on burnishing the matrix in; I get a very accurate matrix and I think it is a little quicker because I do not have to wait over night for my amalgam to set. While my method is not so exact as that of the essayist it is sufficient for me to burnish the original matrix into the tooth with substantial accuracy and I do that at the first sitting and have the patient come back for the second part of the operation at another sitting and am able to put them in in two sittings.

I am one of those who listen to these various theories with a great deal of enjoyment but I have been during the last three or four months a little doubtful of my own ability to construct such work. I recognize more fully the fact that something in that line must be done and the feature which attracts me more forcibly is the point which my friend Dr. Stockton has brought out concerning the welfare of our patrons. On the other hand every man who is conscientious in his professional life must ignore his own love of his own personal technique or the love of the old gold fillings which so many of our old men so truly love and it seems to me these changes are robbing them of one of the pleasures of their lives. Only a little while ago I was speaking to a man who has a wonderful faculty in the construction of gold fillings and to him it is like taking away a well beloved child; but on the other hand we must sacrifice every-



## ITEMS OF INTEREST

thing that is part of ourselves to the great wave of improvement that is flowing over our profession. I recognize that there is much in the strength that inlays afford and much satisfaction in knowing they will exist for years with good serviceable work.

If I might be permitted I would like to say that I believe in this class of work; but in every field of dentistry we seem to have too much divergence of opinion. You will find in every profession, in law or in any of the various walks of life there seems to be more or less one accord in the way things should be done; in our profession we seem to be lacking in that power to organize, to amalgamate and perform some definite thing which answers the purpose better than the countless things that are springing up every day—each man an author of his own theory and fighting for it. We should be pliable and recognize the good things and if there is the least thing that is important it is worthy of ourselves to come forward and give the author the credit for it and bury our own ideas if necessary in doing so. In many other great works men who are seeking for the welfare of the earth at large are narrowing down to one or two ways of doing things, while we have a thousand and one ways of doing things and the result is that the men who are conscientious and striving for the good of humanity are wasting time in investigating these various methods. Let us find out what is best and then walk along that pathway until we have the pleasure of seeing the theory carried to perfection.

I feel very fortunate in having heard this paper and I can promise the essayist that I will indulge in his practices, feeling conscious that I shall be rewarded for my efforts along those lines.

Those of us who have good ideas should be  
**Dr. Wm. Crueman.** willing to share them with others and we should be very much like the street cars that always have room for one more.

I criticise the first paragraph of the paper where the writer suggests the term "prosthetic dentistry" for this kind of work. I think that is not correct; we should confine that entirely to replacing the natural organs and not to their repair, so as to avoid confusion in our already very much confused nomenclature. For a century or more the term "prosthetic" has been applied to replacement and not to repair.

In regard to the special method, that is a matter which depends a great deal on personal preference; we all have our own little ideas. I have used this method of taking impressions with great success, yet I recognize that every time you take an impression and make a cast with that impression you introduce a new opportunity to make a mistake or



## SOCIETY DISCUSSIONS

an error. I prefer in all cases whenever I can to get just as close as possible to the cavity; nevertheless there are places where we can do better by taking an impression.

Another point comes up in my mind—we are getting away from the old method of protecting the patient. I had a little experience with Dr. Marshall; I was in his office nearly an entire week having four teeth filled and at the end of that time was very nearly on the verge of nervous prostration, and it took a week or so to get over it; we are getting away from the idea of considering the patient, more and more.

We all seem to consider these inlays as something new, nevertheless we have records showing they were used as early as 1837 by a dentist in London who published his method of making them and spoke of it very highly for use in a great many cases. The method of making gold inlays practiced now probably had its first conception in a paper read before the Pennsylvania Dental Society in 1876 by Dr. B. J. Bing. He was on the programme to show how large gold fillings could be made in one minute and the announcement seemed to be taken as a joke. He could take a joke as well as the next fellow but he didn't like it, and I think we make a mistake sometimes when things appear on the programme or brought out in a paper that do not agree with our ideas, in treating them lightly. The Doctor was very much provoked and shortened his demonstration as much as he could. He made in his laboratory little pieces of gold and when a patient presented a large filling where he thought one could be used he fitted it into the cavity, not into the body of the cavity as we do to-day but on the outer surface, burnishing and so forth to make it fit, filling the cavity with gutta percha and then putting the gold into position. As soon as he made this explanation we all thought it was a very good idea and many of us adopted it in cases where we found it useful. We found, however, that they did not last. In my own experience all I put in by that method came out except one. That was in a cuspid cavity on the approximal surface, and some ten years after it was put in I believe it came under the notice of another dentist who tried to learn how it was inserted but could not understand it until he came to replace it some years afterwards when he was surprised to find just what the condition was. So the idea was suggested at that time. The difficulty was that gutta percha is in the habit of expanding and there was nothing to hold the edges of the gold veneer in place. But we have now fitted the inlay to the cavity and made the line of cement so thin that it is not likely to wear out in a very short time. So I think these inlays have come to stay, and after the pendulum has swung back and forth two or three times we shall find out where to use them and where not to use them.



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I compliment the essayist on the paper ; it is practical and suggestive and has new ideas and we want all the new ideas we can possibly get.

I do not think there is much to say further but  
**Dr. Dills.** I thank those who discussed my paper and particularly Doctors Stockton and Chase.

Dr. Schamberg said that his method was such that he finished with the patient in two sittings ; I do the same thing ; my usual procedure is to take an impression and fill the cavity temporarily and make a future appointment. In the mean time the impressions taken during the day are turned over to the laboratory man who leaves them until the last thing before he goes at night, when he invests them and fills them in and the next morning they are ready to go to work to make porcelain or gold inlays, whatever they may be, and he will usually guess at the contour of a gold inlay and leave it until the patient comes in and if there is too high occlusion or too much contour it is reduced ; he takes it to the laboratory while the patient is there and finishes it up and in about ten minutes he brings in the inlay and I try it in the mouth and have the patient bite ; if there is anything wrong in the occlusion it will appear then ; then it is taken back to the laboratory and filled in.

With regard to Dr. Trueman's criticism of the title of the paper, I believe I looked it up in Webster's Dictionary and found that "prosthetics" is the restoration of a part lost ; we are restoring an organ and he says we are repairing—but that is a matter of opinion.







In the department of Dental Laws and Licenses will be found a report of a decision by Judge Taylor, of St. Louis, which promises to be of the greatest importance, as a lever with which to eradicate the worst class of dental parlors, viz.: those owned and operated by men who personally have no skill as dentists.

We have a right to expect a graduate dentist to take some pride in the profession which he enters, and to hold sacred her honor and reputation, and it is bad enough when such men disgrace their calling with charlatanism. But what are we to hope for from a man, who is not a dentist himself, but merely uses his capital as a means of setting up a shop, into which he lures the unwary on the pretense of supplying skilled dental services "with an expert or specialist in every department?" This sort of fellow enters dentistry as a business proposition. He opens his "dental parlors" just as any shopkeeper opens a shop. And he hires young graduates to work for him, exactly as the shopman hires clerks to sell goods. The proprietors of these places owe allegiance to no college, preceptor, nor previous vows to uphold and uplift the dignity of dentistry.



## ITEMS OF INTEREST

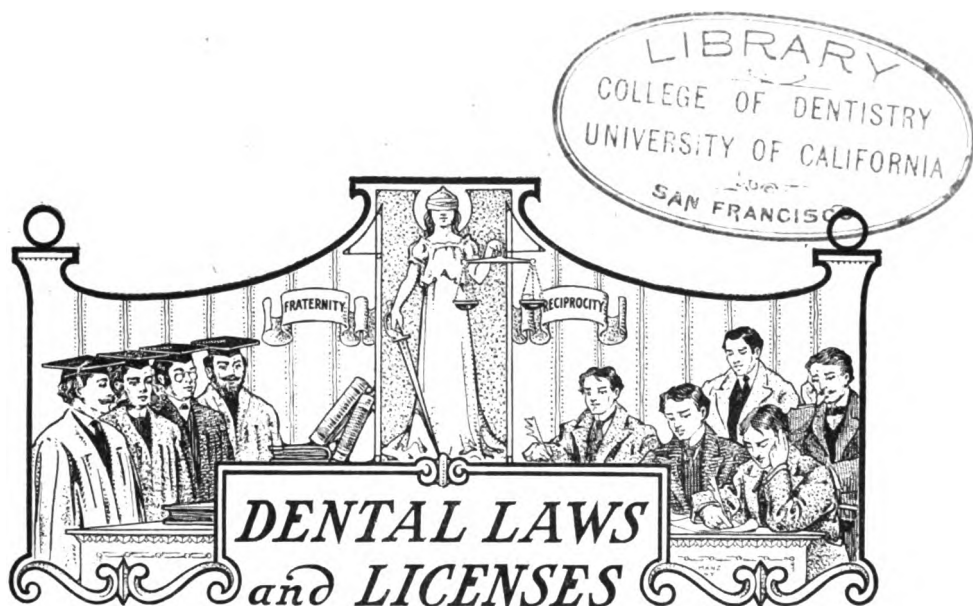
It has been exactly these men who have been the hardest to reach legally in the experience of every appointed dental law committee throughout the Union. They not only have money, but usually what in this country is so aptly termed "political pull."

At length, however, comes a wise judge to supply us with a just precedent. Judge Taylor declares that a corporation is created to do business; that dentistry is not a business, but a profession; and that consequently a corporation can not practice dentistry. Judge Taylor's logic seems unassailable, and his argument is especially apt where he points out that it is the vested right of the individual to engage in any business that he may choose, but that it is totally different with the professions, since the statutes provide that none may practice a profession until qualified by passing an examination which tests his knowledge and his capabilities. Thus a sharp line is drawn between business and a profession, which leads to the logical deduction that a profession may not be engaged in by a corporation which is a business body.

Much credit is due to the Board of Examiners of the State of Missouri for raising this issue and obtaining this judicial decision, which should be as promptly as possible applied in other States, notably in Illinois and New York, where a dental corporation is doing a tremendous business with the aid of flamboyant advertisements. It is noteworthy in passing that this corporation is using the name of its originator, a gentleman now "serving" his own State by the compulsion of its law officers.







### **Corporations May Not Practice Dentistry.**

The following decision was handed down by Judge Taylor, of the St. Louis Circuit Court, in an action brought by the State Board of Dental Examiners for the State of Missouri, to determine whether or not an incorporated body has the right to practice dentistry. The decision is a strong one and clearly holds that the State can not authorize a corporation to practice any of the learned professions. This will put the National Dental Parlors and all similar corporations out of business in the State of Missouri.

#### **Opinion of Judge Taylor.**

In the Tarr case the respondents are officers or stockholders of the "National Dental Parlors," and are charged by the information with having for "several years last past assumed, usurped and unlawfully exercised the privileges of an incorporation under the name of the 'National Dental Parlors,'" and with having unlawfully claimed the right as a corporation under that name to engage in the general practice of dentistry in the City of St. Louis.

By their return made to the order of this court on them, the respondents, Tarr & Tarr, admit that they are practicing dentistry in the City of St. Louis, under the name of National Dental Parlors and claim the right to continue to do so by virtue of a certificate of incorporation issued to certain of their predecessors in interest on January 15th, 1898, by the Secretary of the State of Missouri, based upon the Articles of Association, which stated the purpose of the corporation to be for "the general practice of dental surgery in the City of St. Louis." To this return the



## ITEMS OF INTEREST

relator has interposed a demurrer. This brings directly before the Court the question of the power of the Secretary of State to issue a certificate of incorporation to an association formed for the purpose of practicing dental surgery—the question of the validity of the certificate issued to the corporation controlled by respondents. This question never having been passed upon by our Appellate Courts leaves this tribunal free to pass upon it without any controlling opinion upon the subject.

If any authority exists for the creation of a corporation such as this one now in question, it must be found in section 1319 of Chapter 12, Article 9 of the R. S. of Missouri, 1899, under the General Heading of "Manufacturing and Business Companies." That section enumerates ten specific purposes for which corporations may be organized, none of which directly nor by implication covers the practice of dentistry or medicine, while an 11th paragraph of this section provides that corporations may be formed "for any other purpose, intended for pecuniary profit or gain not otherwise especially provided for and not inconsistent with the constitution and laws of this State." Respondents must find their right to enjoy the privilege of a corporation here or not at all. Did the legislature intend to include in this broad language the practice of dentistry? The old rule governing the interpretation of statutes founded upon the doctrine of *ejusdem generis* has been, so far as this particular section of the statute is concerned, practically abolished by the rule laid down in the case of *State ex rel. Walker*, 123 Mo., 56, so that no limitation is to be placed upon the language of paragraph 11 by the other paragraphs preceding it in which are specified certain purposes for which corporations may be organized. However, when we read the title of the article in which this section is found—"Manufacturing and Business Companies"—and then glance at these specially designated and mentioned purposes we fall naturally into the use of the generally accepted descriptive name or classification of all corporations organized under this law—"business corporations"—and a reading of the whole chapter leads to the conclusion that while in the above quoted paragraph are found the words "for any other purpose," the real intent and meaning of these words is "for any other business purpose."

### **Legal Difference Between Business and Professions.**

While in the earlier days the practice of dentistry may not have been regarded as one of the learned professions, it certainly is so regarded to-day, and it now takes rank with the professions of medicine and law, and it is not likely that the legislature intended to rob it of this dignity nor to have it classed as a business. There may be lines where the practice of the learned professions and business in its general accepted sense seem to cross; there may be unworthy





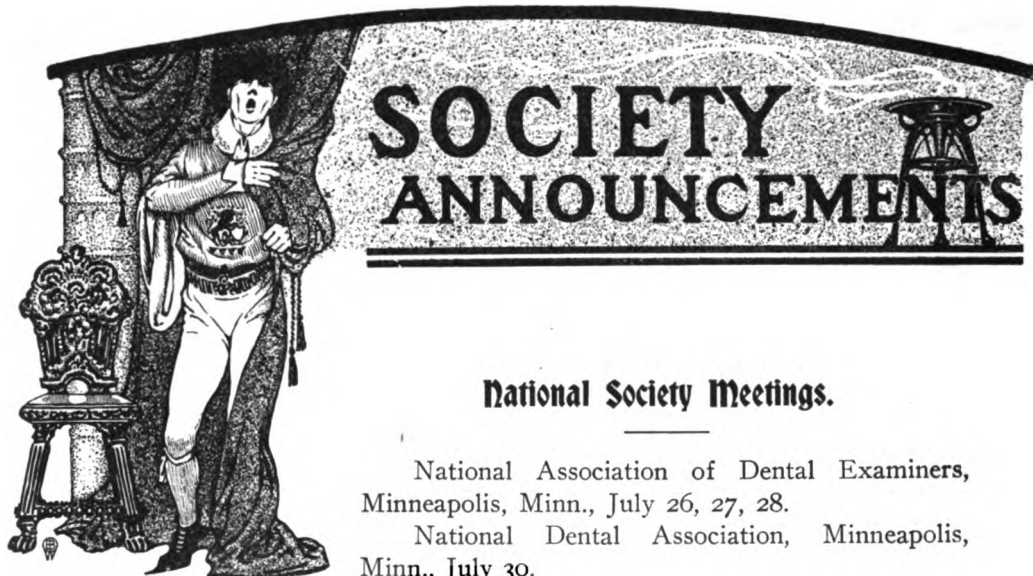
## ITEMS OF INTEREST

members of these professions who conduct themselves as if engaged in business—who even so regard themselves—yet, between the two callings there is a fundamental difference—a difference recognized not alone by men generally but by the law as well. A citizen under our laws has the vested right to engage in any business he may choose which is not prohibited by some special law, and which is not opposed to public policy. Not so with the practice of the learned professions—this is a privilege conferred by specific state license only after examination upon those who possess the standard of fitness, skill and qualification fixed by the State; this distinction is made as the only practical method of protecting the people in their health and life, and in certain situations their property rights, from ignorant pretenders; nor does the fact that these pretenders sometimes obtain these licenses and so engage under the protection of the law in the practice of the professions alter the attitude of the law or cause it to depart from this wholesome rule or principle. (*State vs. Davis*, 92 S. W., 484.) By the various enactments intended to regulate the practice of dentistry requiring that applicants for licenses shall be of good moral character and shall undergo an examination, the legislature has provided a comprehensive and complete plan or scheme governing this calling in this State, which clearly contemplates personal qualifications and personal responsibility in a manner and to a degree utterly inconsistent with the idea that a corporation should be authorized to engage in the “general practice of dental surgery.”

For the reason above indicated the demurrer to the respondents return will be sustained.







### **National Society Meetings.**

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National Association of Dental Examiners,  
Minneapolis, Minn., July 26, 27, 28.

National Dental Association, Minneapolis,  
Minn., July 30.

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### **State Society Meetings.**

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Alabama Dental Association, Birmingham, May 14, 15, 16, 17.

Arkansas State Dental Association, Eureka Springs, May 29, 30, 31.

Connecticut State Dental Association, New London, April 16, 17.

Florida State Dental Society, Atlantic Beach, June 6, 7, 8.

Georgia State Dental Society, Atlanta, May 7, 8, 9, 10.

Illinois State Dental Society, Quincy, May 14, 15, 16, 17.

Maine Dental Society, July 16.

Minnesota State Dental Association, Minneapolis, July 30, Aug. 3.

Montana State Dental Society, Helena, April 12, 13.

Nebraska State Dental Society, Lincoln, May 21, 22, 23.

New Jersey State Dental Society, Asbury Park, July 17, 18, 19.

New York State Dental Society, Albany, May 10, 11.

South Carolina State Dental Association, Anderson.

Vermont State Dental Society, Burlington, May 15.

Virginia State Dental Association, Jamestown, Sept. 10, 11, 12.

Wisconsin State Dental Society, La Crosse, July 16, 17, 18.





## **National Association of Dental Examiners.**

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The National Association of Dental Examiners will hold their Twenty-fifth Annual Meeting in Minneapolis, Minn., beginning Friday, July 26, and continue through the 27th and 29th.

Accommodations have been secured at the leading hotel of Minneapolis, "The West Hotel." Rates as follows: Room without bath \$1.00 per day for each person occupying the room. Room with bath, \$2.00 per day for one person and \$1.50 per day for each additional person in room. Hotel on European plan. Any room in the hotel capable of accommodating two people. Telephone in each room; hot and cold water. A large attendance of delegates is earnestly requested. Committee on Colleges, Joint Conference Committee, Tabulation of Examining Boards reports, the Committee for promoting a system of credits and uniformity of Examinations will all give exceedingly interesting reports, valuable to all the members of the Association. Railroad rates will be announced later.

For information apply to Charles A. Meeker, D.D.S., secretary and treasurer, 29 Fulton Street, Newark, N. J.

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## **New Jersey State Board of Registration and Examination in Dentistry.**

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The New Jersey State Board of Registration and Examination will holds its Semi-annual Meeting beginning Monday, July 8, 9, 10, and 11, in the Assembly Chamber of the State House at Trenton, N. J.

For information kindly apply to the secretary.

A photograph of the applicant must be filed with the application.

Practical and theoretical work completed at the session.

CHARLES A. MEEKER, D.D.S.,  
Secretary of Dental Commission.

29 Fulton Street, Newark, N. J.

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## **Montana State Board of Dental Examiners.**

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Annual dues payable January 1, but the law imposes the penalty only after May 1. Remittance should be made by some form of M. O. and the receipt carefully retained until dues receipt is received. Observance of



## ITEMS OF INTEREST

this rule will render it impossible for an error to escape detection. The Board absolutely refuses to be responsible for money claimed to be sent in open mail. Annual Meeting of the Board July 8, 9, 10, in Helena. Application blanks, which must be filled out and returned at least 20 days prior to the meeting, may be obtained of the Secretary.

Applicants for the examination must furnish their own material and instruments, including hand piece, for practical demonstration.

Written examinations include anatomy, physiology, chemistry, dental medicine, metallurgy, histology, operative, surgical, and mechanical dentistry.

D. J. WAIT, Secretary.

Helena, Montana.

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### Massachusetts Board of Registration in Dentistry.

A meeting of the Massachusetts Board of Registration in Dentistry, for the examination of candidates, will be held in Boston, Mass., March 6, 7, and 8, 1907.

Application blanks may be obtained from the Secretary.

DR. G. E. MITCHELL, Secretary.

Haverhill, Mass.

25 Merrimack Street.

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### New York State Dental Society.

The Thirty-ninth Annual Meeting of the Dental Society of the State of New York will be held in Albany, May 10 and 11, 1907, when essays will be presented by the following members of the profession: Dr. W. D. Miller, Berlin; Dr. A. H. Peck, Chicago; Dr. Charles McManus, Hartford; Dr. Clarence J. Grieves, Baltimore; Dr. G. V. I. Brown, Milwaukee; Dr. L. C. F. Hugo, Washington; Dr. Nelson T. Shields, New York; Dr. I. C. Curtis, Fulton; Dr. L. S. Goldsmith, New York, report correspondent; Dr. E. Howard Babcock, Brooklyn, report on Practice; Dr. Emanuel Muntz, Buffalo. Report on Scientific research.

A full list of clinics is being arranged and a complete programme will be announced later.

W. A. WHITE, President,  
Phelps, N. Y.

CHARLES S. BUTLER, Secretary,  
Buffalo.





### **New Jersey State Dental Society.**

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The New Jersey State Dental Society will convene in the Auditorium, Asbury Park, N. J., beginning Wednesday, July 17, and continue 18 and 19.

The exhibitors will please communicate with Dr. Walter Woolsey, Elizabeth, N. J. Clinicians communicate with Dr. Charles H. Dilts, Trenton, N. J. Essayists communicate with Dr. W. A. Jaquette, Salem, N. J.

CHARLES A. MEEKER, Secretary,  
29 Fulton Street, Newark, N. J.

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### **American Dental Society of Europe.**

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The American Dental Society of Europe will hold its next annual meeting in Rome, Italy, at Easter, 1907. A very cordial invitation is extended to members of the profession to be present. As it is the first meeting of the Society in the "Eternal City," it is hoped it may be the most enjoyable one in its history.

J. W. GALE, Hon. Sec'y,  
79 Hohenzollern-Ring, Cologne (Rhine), Germany.

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### **Detroit Dental Society Clinic and Banquet.**

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On February 16, 1907, will be celebrated the Twenty-fifth anniversary of the founding of the Detroit Dental Society.

A splendid programme has been arranged, including a clinic and banquet, and a lecture by Dr. C. N. Johnson, the guest of honor, on a subject in which all progressive men are interested—"Cavity Preparation for Inlays."

A very cordial invitation is extended to all reputable practitioners to attend this meeting.

GEORGE F. BURKE, Secretary.  
315-317 Stevens Bldg., Detroit, Mich.



## ITEMS OF INTEREST

### **Psi Omega Dental Fraternity.**

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The Fifteenth Anniversary Dinner of Psi Omega Dental Fraternity, will be held Friday evening, February 15, 1907, at Hotel Manhattan, Forty-second Street, corner Madison Avenue, New York City, at 6.30 o'clock. A most cordial invitation is extended to all Psi Omegans in New York and vicinity.

LEROY S. EDWARDS, Secretary Banquet Committee.  
140 Remsen Street, Brooklyn, N. Y.

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### **Vermont State Dental Society.**

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The Thirty-first Annual Meeting of the Vermont State Dental Society will be held in Burlington, Vt., May 15, 16, and 17, 1907.

The Vermont Society has in the past held most successful meetings, and we have every reason to expect that this will surpass any previous one, as a very interesting programme has been prepared by the committee, and will be mailed in due time.

Vermont has the largest per cent. of membership in its State Society of any State in New England, and we hope to see every dentist in the State who is eligible a member.

THOMAS MOUND, Secretary.

Rutland, Vt.

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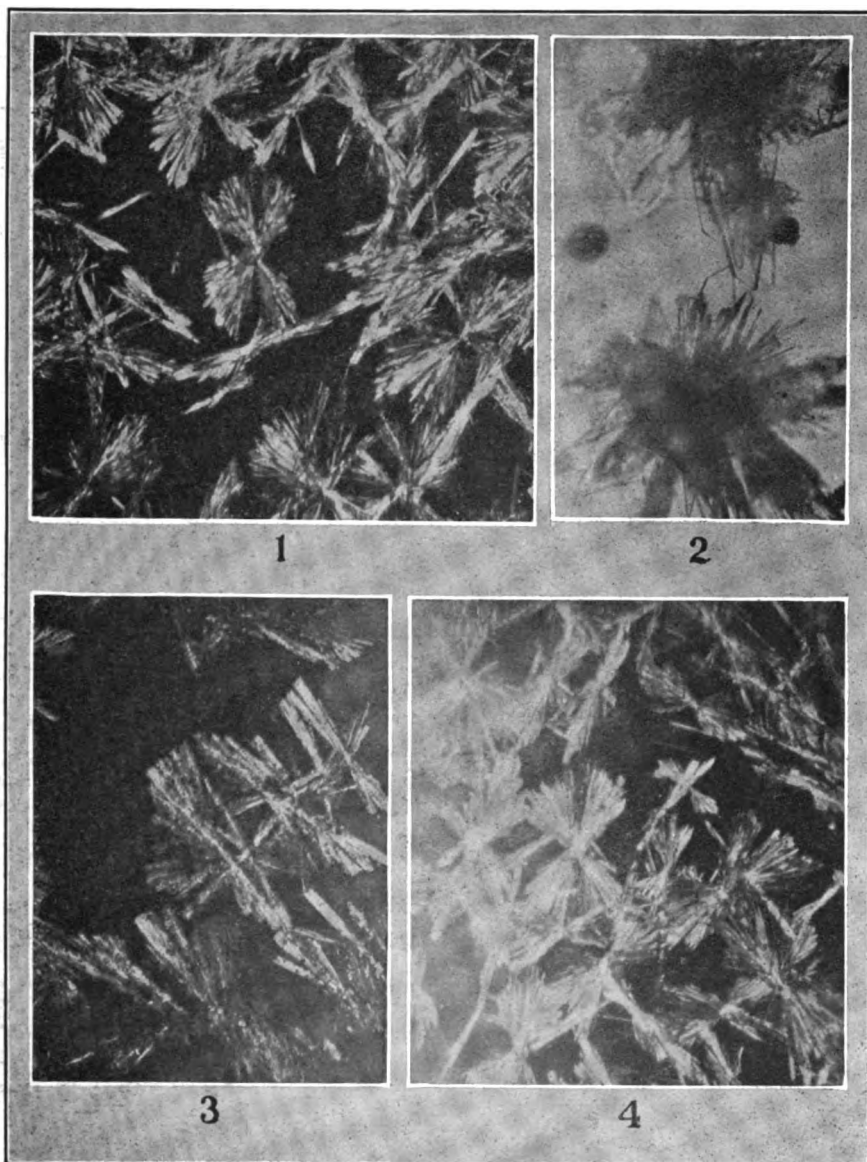
### **San Francisco Dental Society.**

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At the regular meeting of the San Francisco Dental Society, the following named officers were elected for the ensuing year: President, Dr. H. A. Frederick; Vice-President, Dr. J. V. Levensger; Recording Secretary, Dr. L. C. Heller; Financial Secretary, Dr. F. J. Lane; Treasurer, Dr. W. A. L. Knowles; Librarian, Dr. M. A. Greenlaw.

L. C. HELLER, D.D.S., Secretary.





1. Calcium acid lactate obtained from a solution of calcium phosphate in pure lactic acid.
2. Crystals from a solution of calcium phosphate in acetic acid.
3. Calcium acid lactate from calcium phosphate in pure lactic acid, same as 1.
4. Crystals from a solution of calcium phosphate in ordinary lactic acid.



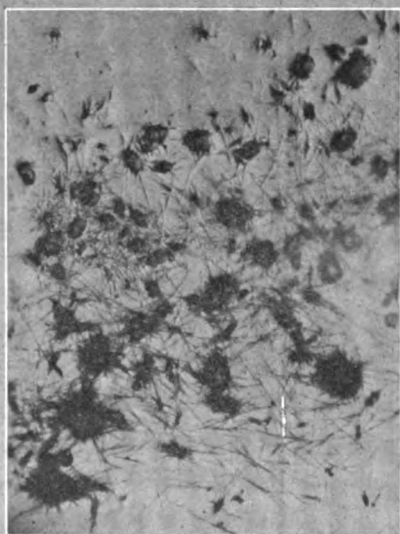
# ITEMS OF INTEREST



5



6



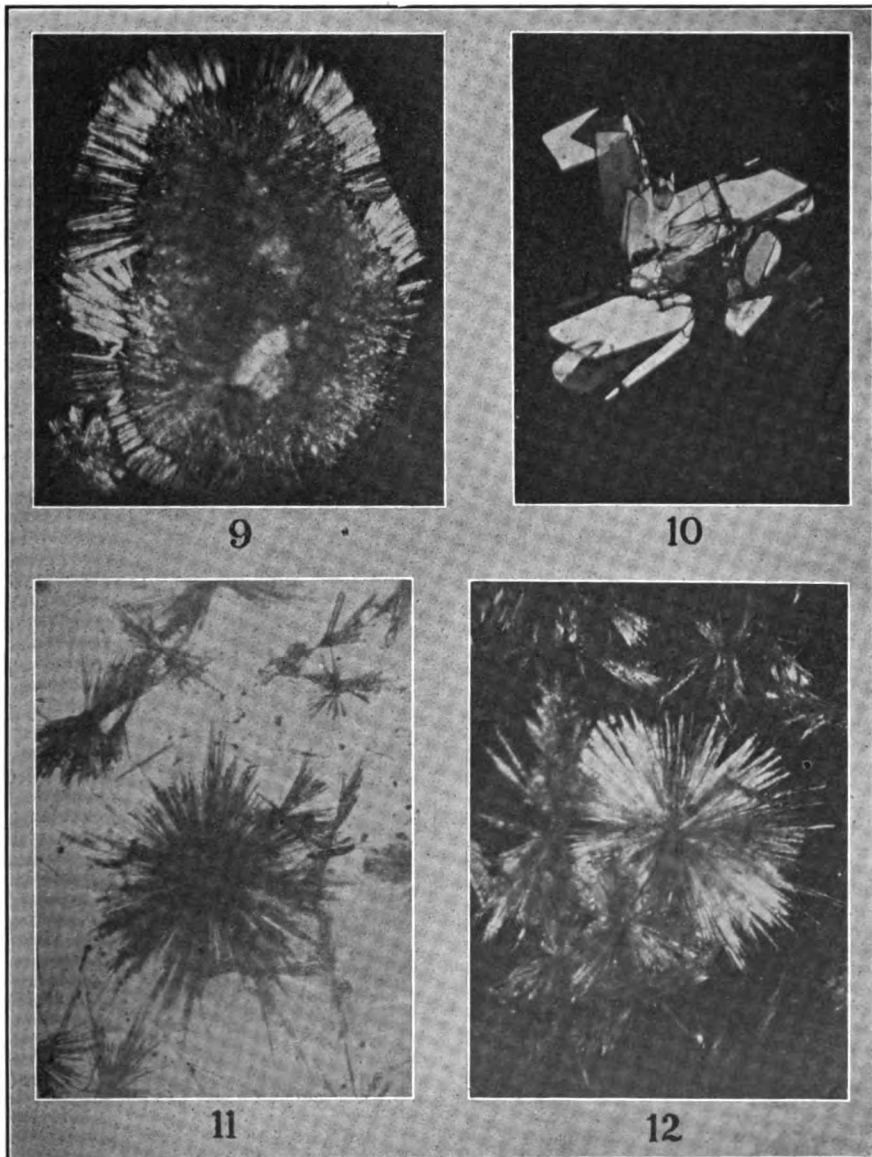
7



8

5. Same crystals as 4, with different light.
6. Crystals from a solution of calcium phosphate in acetic acid.
7. Crystals of calcium lactate.
8. Crystals from a solution of calcium phosphate in lactic acid—formed slowly.





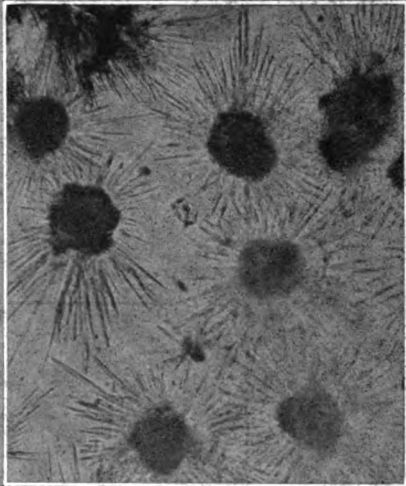
9. Crystals of *so-called* calcium lacto-phosphate.
10. Crystals formed slowly in a solution of calcium phosphate in lactic acid.
11. Direct light photo of *so-called* calcium lacto-phosphate from No. 1.
12. Polarized light photo of *so-called* calcium lacto-phosphate from No. 1.



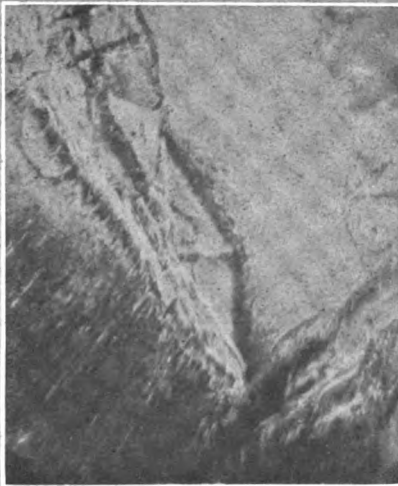
## ITEMS OF INTEREST



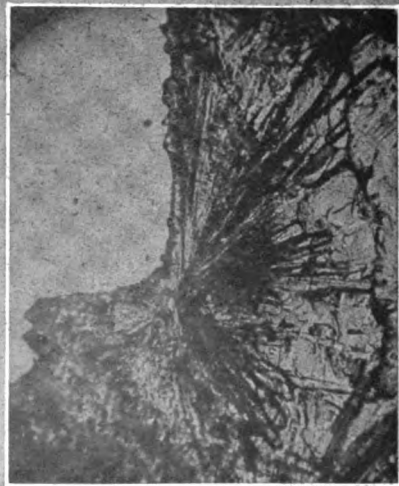
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14



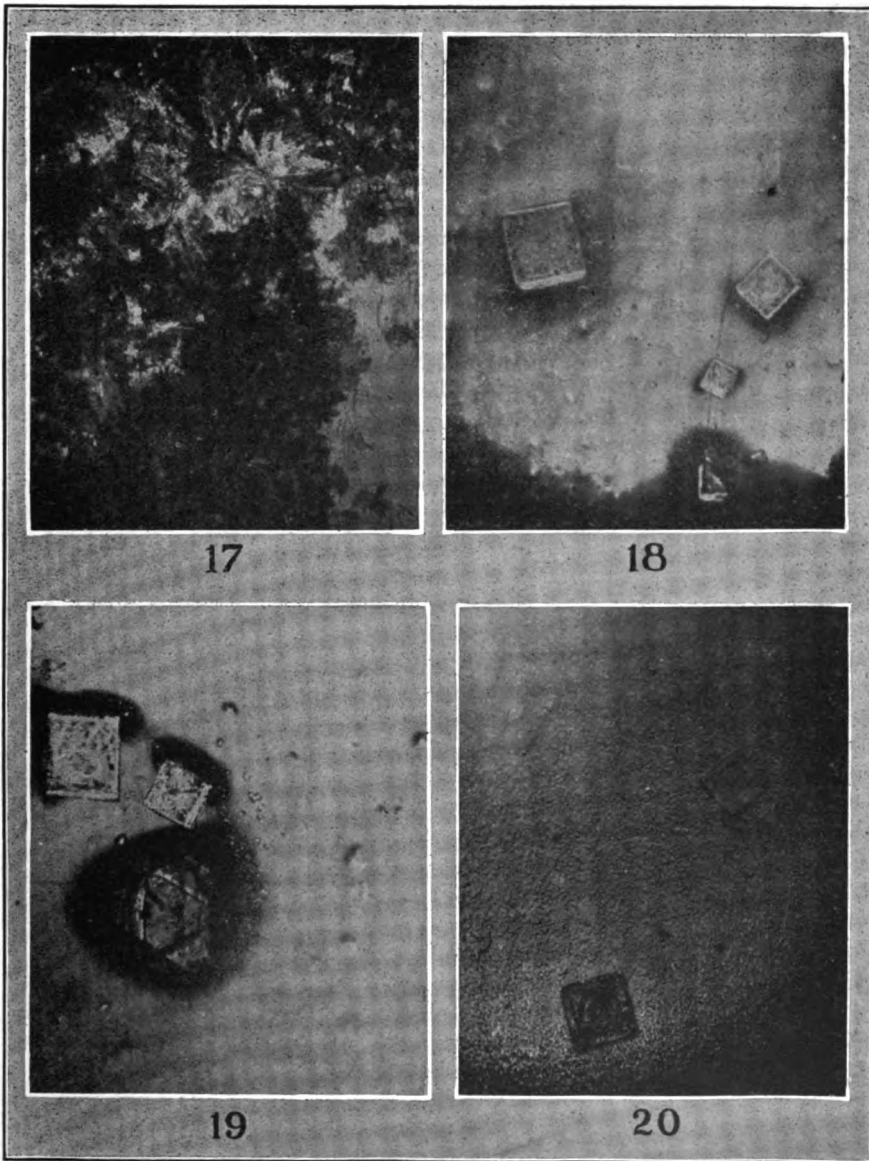
15



16

13. Direct light photo of same crystal as No. 12.  
14. Crystals of calcium lactate like Boston's tyrosin crystals, one form.  
15. Crystals from a solution of calcium phosphate in propionic acid.  
16. Crystals of calcium propionate—dilute solution.

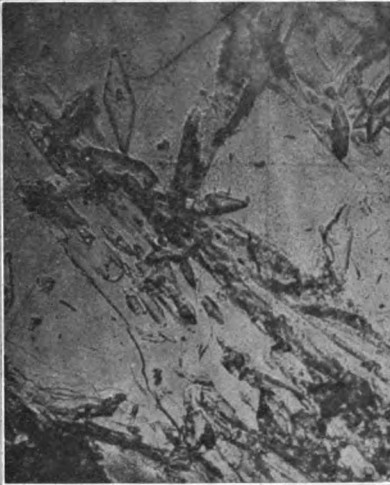




17. Crystals of calcium proportionate—concentrated solution.
18. Crystals from Hinkins' dialyzed saliva (obtained by chewing gum) after two days' growth.
19. Same as No. 18, containing crystals with a hexagonal form.
20. Crystals from Hinkins' dialyzed saliva—no gum chewed.



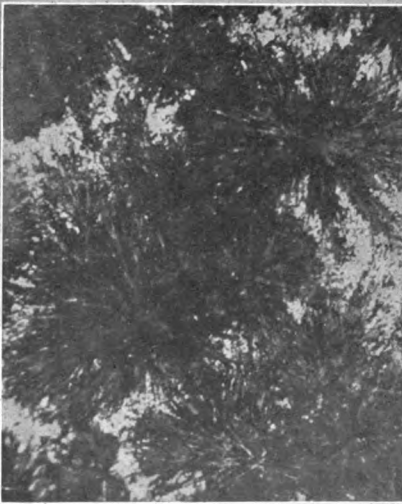
# ITEMS OF INTEREST



21



22



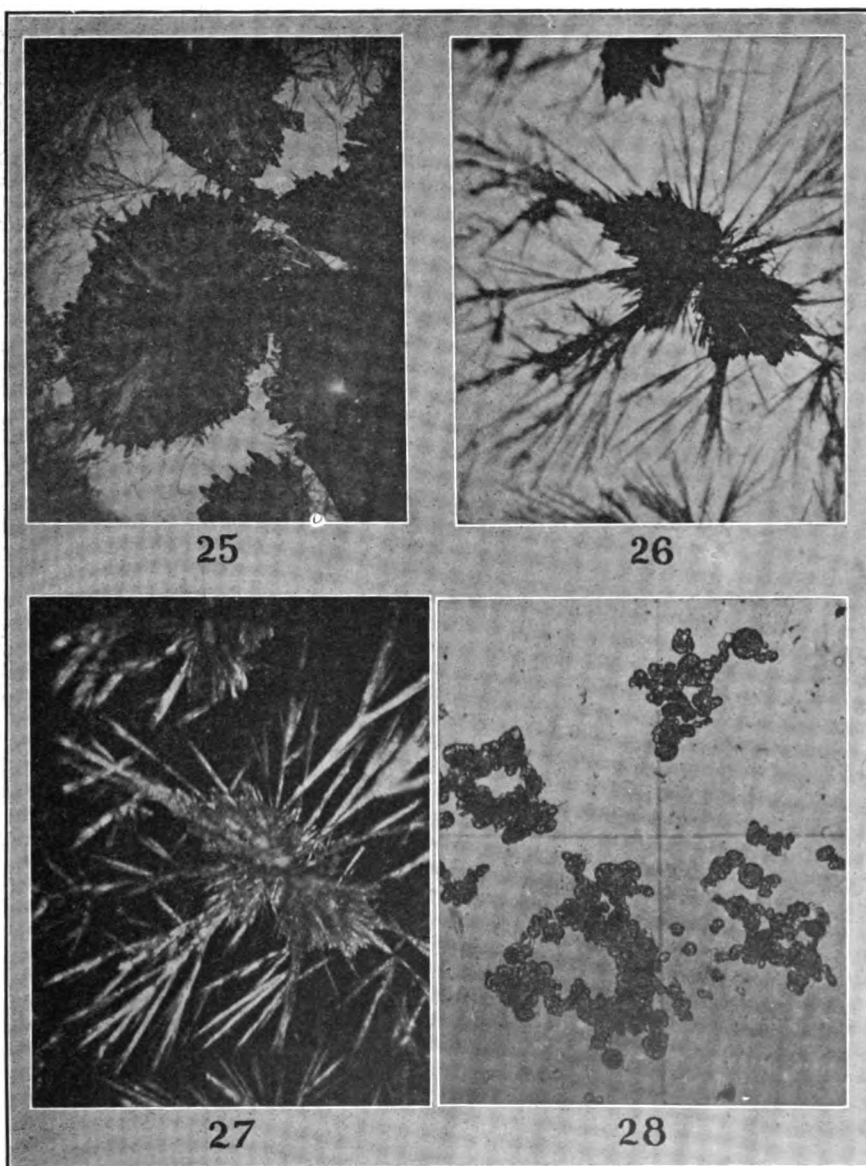
23



24

21. Crystals from a solution of calcium phosphate in propionic acid.
22. Same slide as in No. 21.
23. Crystals from a solution obtained by allowing a tooth to remain in 100 c.c. of 1 per cent. lactic acid for one week—not dialyzed.
24. Calcium acid lactate from calcium lactate and lactic acid—small crystals.

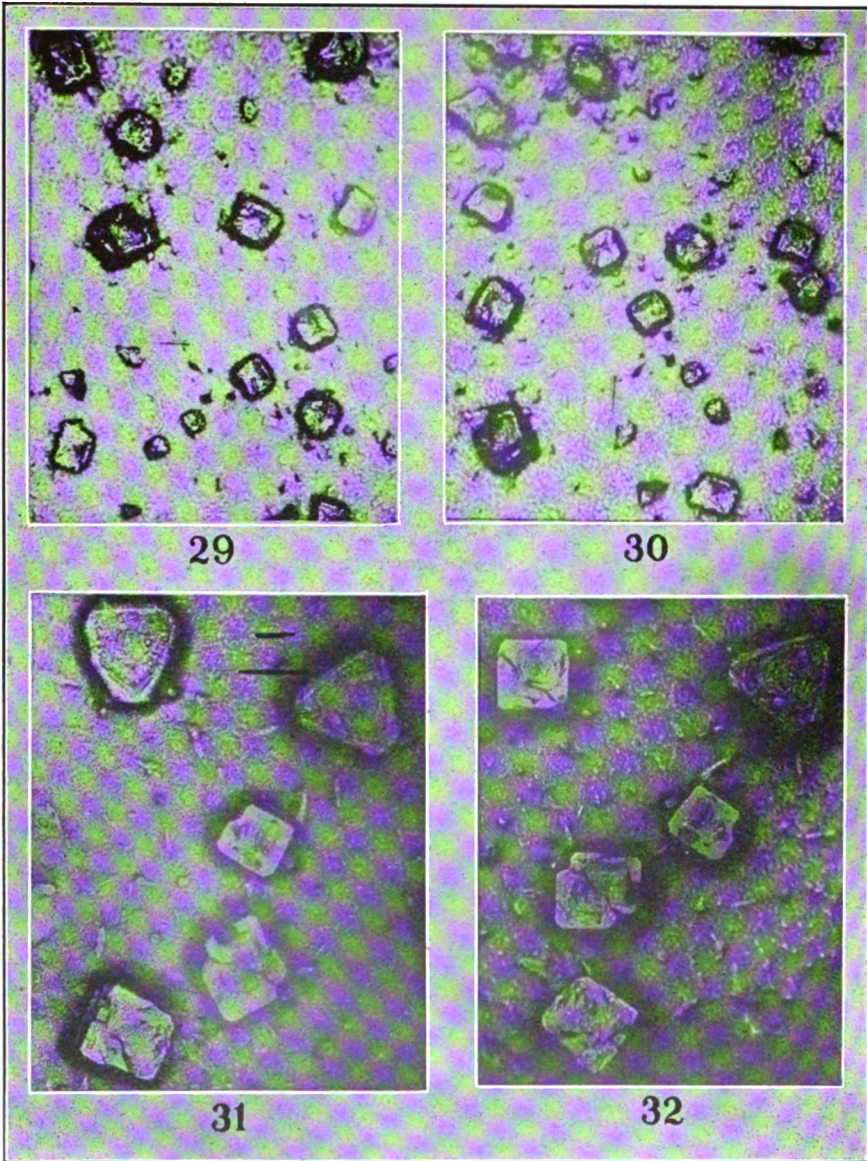




25. Same as No. 24, large crystals.
26. Single crystal of calcium acid lactate in ordinary arc light.
27. Same crystal as No. 4 in polarized light.
28. Crystals from a solution made by treating a tooth in 100 c.c. 1 per cent. lactic acid and evaporating to a syrup.

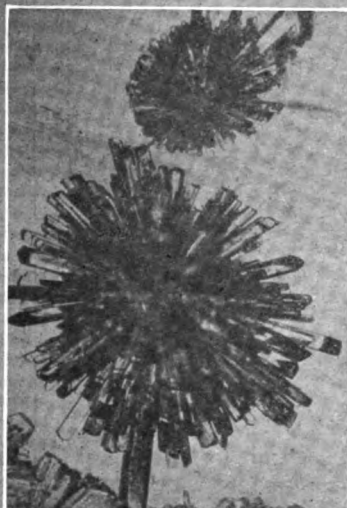


# ITEMS OF INTEREST



29. }  
 30. } Hinkins' saliva, dialyzed; crystals grown two weeks, showing both  
 31. } crystal forms.  
 32. }

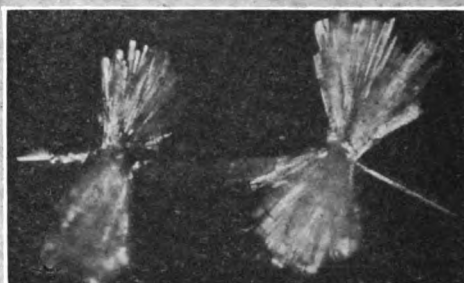




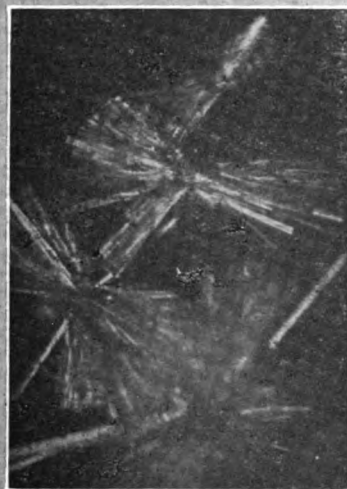
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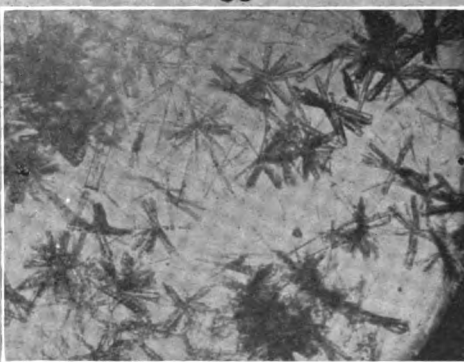
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35



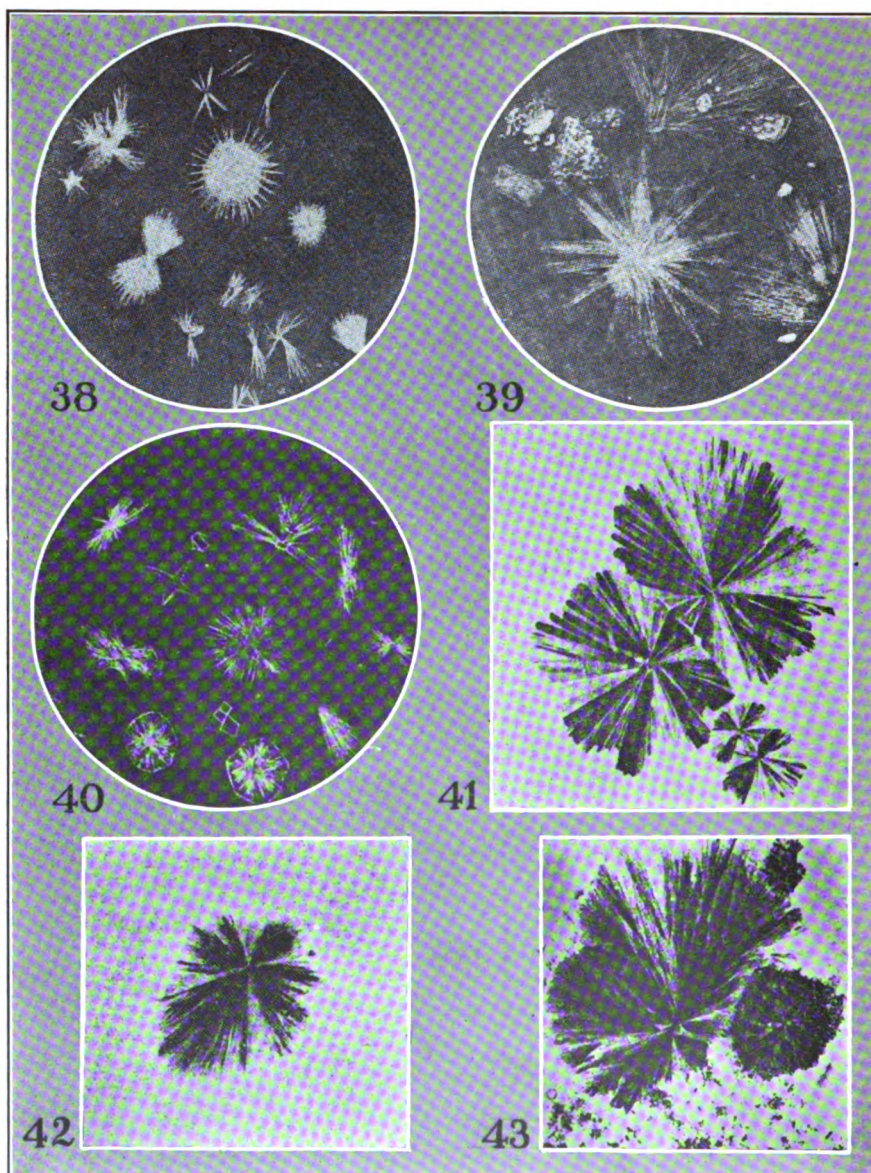
36



37

33. Round crystals of zinc lactate.
34. Sheaf-like crystals of zinc lactate, by ordinary light.
35. Sheaf-like crystals of zinc lactate, by polarized light.
36. Sheaf-like crystals of zinc lactate, by ordinary light.
37. Field of zinc lactate, by ordinary light.





38. Tyrosin crystal, taken from Boston. 39. Crystals of calcium phosphate, taken from Boston. 40. Leucin and tyrosin crystals, taken from Boston. 41. Magnesium lacto-phosphate, made by action of lactic acid on pure magnesium phosphate. Fig. 9, Kirk's. 42. Calcium lactate, made by action of lactic acid upon pure calcium carbonate. Fig. 6, from Kirk's. 43. Crystallization of salts from dialysate of saliva from erosion case, showing two typical forms. Fig. 3, from Kirk's.





## Some Investigations on General and Local Erosion of the Teeth.

By J. E. HINKINS, D.D.S., Chicago.

In an article appearing in *ITEMS OF INTEREST*, July, 1902, Dr. E. C. Kirk published a paper under the title of "*The Clinical and Chemical Study of a Case of Dental Erosion.*" In this paper Dr. Kirk reported on a case of general erosion that had come under his care, and stated that as a result of his investigations on this one case (p. 518) "*the determination of the solvent in this case and the general nature of the disorder, affecting as it does all the teeth, would seem to make it necessary to divide our erosion cases into two classes—those in which the erosion is general in which all of the surfaces of the teeth are uniformly involved, in which lactic acid is the solvent acid; and the other class, which is distinctly due to the exudate from an abnormal buccal mucous gland or glands, the acidity of which is due to one of two things—the acid sodium phosphate or the acid calcium phosphate. I have pursued the study of this case only to the point of determining the presence of lactic acid as the active solvent agent. My study of other cases has gone far enough to warrant me in expressing the belief that the localized cases are produced by the abnormal mucous exudate containing either of the two solvents named.*"

After a careful perusal of Dr. Kirk's article and his method of work, especially his chemical methods, involving the detection of the lactic



## ITEMS OF INTEREST

acid, the sodium acid phosphate, and the calcium acid phosphate, I am enabled to point out some of the errors in Dr. Kirk's chemical technique and in his conclusions regarding the causes of local and general erosion.

In my paper read before the Fourth International Dental Congress at St. Louis, August 31, 1904, dealing with the question of erosion in general, I pointed out that in all the cases which I studied, the salivas of those individuals suffering from erosion were acid, indicating the possible activity of the enzymes in the body in the formation of these acids contained in the saliva (vide *Dental Cosmos*, March, 1905, p. 328). I said in that paper: "*In a paper by Dr. E. C. Kirk (Items of Interest, July, 1902), the theory is discussed that erosions may be due to the action of lactic acid and the acid phosphates of sodium and calcium upon the tooth structure. We wish to point out that in our paper, read in Paris in 1900, we pointed out the role played by these organic acids in the failure of cements and tooth structure—and in view of this Dr. Kirk's hypothesis is not new. Dr. Kirk dialyzed saliva and obtained crystals from this liquid which he thought to be lactates or lacto-phosphates. We do not feel that reliable conclusions can be drawn from such data. There are many thousand different substances with the same crystal form. Unless these crystals are isolated and subjected to a chemical analysis—which Dr. Kirk apparently did not make—one can draw no conclusions in regard to their chemical composition. Aside from this it has been known for some time that calcium acid phosphate is a normal constituent of the saliva, and that lactic acid is formed by bacterial agencies in the mouth. The presence of these lacto-phosphates does not prove that they arise from tooth erosion.*"

In an editorial which appeared in the *Dental Cosmos*, March, 1905, Dr. Kirk replied to my criticisms. Dr. Kirk's article tends to make it appear that I have made statements and hold views different from those which I really have. I will therefore point out some of the errors in Dr. Kirk's reply. In the first one-third of the editorial in the *Dental Cosmos*, 1905, pp. 338-339, he fails to give me credit for my researches showing the role of the organic acids formed by mouth bacteria in the solution of cement fillings and decay of tooth structures, and gives all this credit to Dr. Miller.

Now then let us quote Dr. Kirk in the *Dental Cosmos*, p. 338: "*I take it for granted that the facts which Dr. Hinkins's reesarches tended to prove are generally accepted by all who have given any attention to the questions, especially as this general fact was also clearly demonstrated by the researches of Miller nearly twenty-five years ago in his study of dental caries.*"



"The fact that acids are produced by fermentative processes 'in the mouth' has come to be part of the common knowledge of dentistry; so likewise was the fact that it was the research of Miller which established it. . . . Miller's researches clearly demonstrated the fact that acids formed at the seat of decay do actually dissolve the calcium phosphate of the tooth structure, this process constituting one of the essential factors in dental caries."

**Prof. Miller's  
Investigations  
Discussed.**

Let us now see what Dr. Miller has to say about this work that Dr. Kirk gives him credit for. Concerning Miller's *Mikroorganismen der Mundhole*, German Edition, 1892, p. 104, (only thirteen years ago), he says in the chapter on Mouth Bacteria as causes of fermentation on page 104: "*The spontaneous formation of butyric acid by fermentation has not been observed in the mouth.*" On page 110 under the heading *Fermentation of fat and fat acids in the mouth*, he says: "*Whether or under what conditions the fermentation of fats or fatty acids, etc., spoken of on page 30, occur in the mouth, on this there are no data.*" Page 111: "*Whether the various fermentations mentioned on page 28, in which lactic, butyric, propionic acids, etc., are formed, occur in the mouth in any considerable amount, is unknown; on this no experiments have been carried out.*"

Now let us ask Dr. Kirk if any of this reads as though Dr. Miller's researches showed twenty-five years ago that acids are produced by fermentative processes in the human mouth?

Dr. Miller really showed that certain mouth bacteria generate acids in media *outside the mouth*. I showed in my paper, read before the International Dental Congress in Paris, just how strong these acid solutions may become, and that they are strong enough to dissolve cement fillings readily, and that since calcium phosphate has about the same solubilities, it should be dissolved by these acids, which we have since amply verified by experiment.

Now, in regard to the second point above quoted from Dr. Kirk: Dr. Kirk says that Dr. Miller showed *that acids formed at the seat of decay do actually dissolve the calcium phosphate of the tooth structure*. Now let us turn to Dr. Miller's paper and see what Dr. Miller says about what he showed. In the *Independent Practitioner*, December, 1883, Vol. IV, page 637, and also in Miller's book, page 150, he describes the analysis of carious teeth and sound teeth, and finds that there has been a loss of calcium phosphate in the carious portion. But this by no means proves that the acids or the acids alone were the solvent; there are other products of fermentation present, such as ptomaines, organic nitrogenous bases from the proteid contents of the tooth, etc., and the possibility of



## ITEMS OF INTEREST

solution by these was not excluded. There are other things besides acids that dissolve calcium phosphate; namely, bases and salts. And especially must we remember that Young and Hurst have shown that *neutral salts*, like the chlorides and nitrates of potassium and sodium, which occur in all salivas, dissolve calcium phosphate with the simultaneous formation of acid. Did Dr. Miller's experiments then prove that the bacteria generated the acids in the mouth and that these then dissolved the teeth, or did his experiments prove, for example, that bacteria are able to draw potassium chloride around them in unusually large quantity and that this potassium chloride dissolved the tooth, at the same time giving rise to an acid? I submit that Dr. Miller's experiments did not decide between these two possibilities. Furthermore, in discussing the purely chemical theory of caries, on pages 119, 120, 121, Miller refers to about fifteen individuals before his time who held the chemical theory as the correct one. Miller does not at any time claim credit for this hypothesis. But Miller himself, in discussing this theory at the end of the chapter, says (page 121): "*The untenability of the purely chemical theory of tooth caries has been shown so many times from various sides in recent years, that it does not seem necessary to go into this fully at this point.*"

Dr. Miller did not mention in his article that he took the pure organic acids, free from bacteria, and treated teeth or cements with them to test their solubility. Furthermore, let us see what Dr. Miller said in St. Louis in discussing my paper on erosion. On page 335, *Dental Cosmos*, March, 1905, Dr. Miller says in his discussion: "*I have hesitated to accept the acid theory, because authorities differ. We have such men as Preiswerk, Dill and others who are in authority among us and they claim that erosion is most frequent when the saliva has an alkaline reaction. If erosion is caused by acids, I can not understand how it is that we have the bright, shining surface. You can not produce a shining surface by the action of acids on tooth substance. If you act upon enamel by an acid and brush it with a brush, the surface on drying will appear chalky. For this reason I have not quite been able to accept the theory of acid having a prominent part in the production of erosion.*"

From all the above statements it is quite clear that Dr. Miller does not acknowledge as much credit for the subjects under discussion as Dr. Kirk honors him with.

### **Dr. Kirk's Investigations Discussed.**

And now let us take up Dr. Kirk's discussion of my criticism of the methods of analysis employed by him in the determination of the presence of lactic acid in the saliva of his patient by means of his so-called *calcium lacto-phosphate*. It will be recalled that Dr. Kirk dialyzed the saliva of his patient, evaporated the dialyzed



portion and allowed some of this to crystallize on slides. He thus obtained crystals having a sheaf-like form, and which in this form rotated polarized light, and which he *thought* to be calcium lacto-phosphate—but not once did he give any evidence of having analyzed them by chemical means. He did, however, dissolve some calcium phosphate in lactic acid, and evaporate this, and he got crystals again which had the same sheaf-like form, which rotated polarized light and which he also took for granted to be *calcium lacto-phosphate*—but again he made no analysis of this substance, which could very easily have been done, as he could obtain it by this means in large quantities. Dr. Kirk dissolved magnesium phosphate in lactic acid, and by similar methods obtained crystals which he called *magnesium lacto-phosphate*—but for which he gave no analysis.

I object to the methods used by Dr. Kirk on two grounds: First, he did not analyze by chemical means either the saliva or the crystals which he obtained and which he could readily have done, as lactic acid is a substance very easily detected; second, his only means of identifying the crystals obtained from the dialyzed saliva was to compare them with crystals made from a solution of calcium phosphate in lactic acid. The two sets of crystals *looked alike*—and he called them *calcium lacto-phosphate*.

Since we have nearly 100,000 organic and inorganic chemical compounds tabulated, and since there are comparatively few crystal forms known, it follows as a necessary consequence that there may be many hundred compounds having the same crystal form and the power to rotate polarized light when in the crystal state. This fact alone, then, makes all careful chemists analyze by chemical means the compounds with which they work. Although it is true that probably a very much smaller number of these compounds occur in the saliva, yet even if there were only *two*, we should still analyze the crystals to determine what they are. As my photographs will show, and as has been well-known for nearly one hundred years, the appearance of the crystal forms of a substance under the microscope varies with the length of time of their growth, with the nature of the solvent from which they precipitate out, and very often with the nature of the substances dissolved along with them.

On page 339, *Dental Cosmos*, March, 1905, Dr. Kirk says: "*The method by which the identification of the several crystals, as referred to, was made, in the opinion of those who being expert chemists are men competent to pass judgment thereon, is of at least equal accuracy with the modes of ordinary chemical analysis. There are other methods than by chemical analysis to determine the identity of various chemical substances.*"



## ITEMS OF INTEREST

The above statement does not conform to the facts. A glance at the contributions from the chemical laboratories of the University of Pennsylvania, Johns Hopkins University, Harvard, University of Chicago, Yale, Columbia, or any other reputable university in this or other countries, whether these contributions come from the faculties or from the candidates for the degree of Doctor of Philosophy, will show that the compounds are analyzed by chemical means, even when they have been characterized before. Such things as the crystal form, the melting points, the solubilities in various solvents, etc., are *aids* in determining the identity of the compounds in question; but by no *one* alone nor by all of these can we be absolutely certain of the composition or constitution of a compound until we have analyzed it and subjected it to various chemical reactions to determine the grouping of the atoms within the molecule. Nicotine, for instance, was discovered in 1843, but it was only in 1903, after all those years of work by Willstätter, Buchner and Pictet, that its constitution was finally solved and the substance was actually synthesized in the chemical laboratory.

And how misleading is Dr. Kirk's comparison of the relative value of the micro-polariscope and of the spectroscope in determining the identity of a substance! When substances are volatilized in a Bunsen flame or in an arc light, or in a Bessemer converter and viewed through a spectroscope, each element gives certain definite lines having certain definite positions in the spectrum, and the spectrum of each element is not influenced by the spectra of others. One has only to note the position of the lines and compare them with a map of the lines of all known elements to learn just what elements are giving the spectra. And this is just as exact as a chemical analysis by other means would be. But who would dare to say that small cubical crystals under a micro-polariscope are sodium chloride, or potassium bromide, or slightly impure ammonium chloride, or one of a hundred other things?

### **Calcium Lacto-phosphate and Erosion.**

And now let us take up the study of Dr. Kirk's so-called *calcium lacto-phosphate*, and see if there is any connection between this and general erosion, as claimed by Dr. Kirk.

First, we have his general proposition that *general erosion* is caused by excessive lactic acid formation by *fermentation* in the mouth, and that in such cases the so-called calcium lacto-phosphate will be found in the dialyzed saliva. It has already been reported by Drs. Cook and Buckley, and myself, that we examined a number of cases of general erosion accompanied by acid saliva (see the *Dental Review*, April 15, 1905), in order to learn whether this suggestion of Dr. Kirk's would be of any assistance to us in determining the cause of the



erosions. In every case examined, the crystals obtained from the dialyzed acid saliva were entirely different from those described by Dr. Kirk, and different from the sheaf-like forms which are obtained by treating calcium phosphate with lactic acid and allowing this solution to evaporate on slides, and which were, of course, the *so-called* calcium lacto phosphate. So here were several cases of general erosion in which the dialyzed acid saliva did not give the *so-called* lacto-phosphate crystals; in other words, we had here several cases of general erosion, not traceable to lactic acid, while Dr. Kirk had *one*, which he thinks to be due to lactic acid. Such a disparity in the number of cases of erosion due to lactic acid and those not due to lactic acid would not speak strongly for Dr. Kirk's theory of general erosion.

But we can go further in this line. We have examined a number (six) of cases of erosion accompanied by acid saliva and have tested for the lactic acid by *chemical means*. Ewald's test is so delicate that when 1 c. c. of 1 per cent. ferric chloride and 1 c. c. of 1 per cent. carbolic acid is added to a solution containing one-sixteen-hundredth of 1 per cent. lactic acid the violet color is changed to yellow. Out of six cases examined, only one gave even an indication of lactic acid. Yet the amount of acid present in all these cases, as determined by titration, far exceeded the amount of lactic acid necessary to change the colors indicated above. So it is quite evident that we have many more cases of general erosion accompanied by acid saliva not containing lactic acid than cases actually containing lactic acid. Thus Dr. Kirk's theory that general erosion is due to lactic acid is contradicted also by this accurate chemical evidence.

But now let us examine the *so-called* calcium lacto-phosphate spoken of so often by Dr. Kirk. Dr. Kirk did not analyze this substance, or substances if it is a mixture, although it could have been obtained in large quantities very easily by his method. Is it really *calcium lacto-phosphate*? Does it really contain, as *essential constituents*, calcium, lactate and phosphate radicals? If a dentist, on examining an unknown saliva, were to find these sheaf-like crystals, and had too little to analyze by chemical means, could he be sure that the patient was suffering from erosion of the teeth by lactic acid? In other words, could he be sure that the teeth were being eroded at all or that there was lactic acid in the saliva?

All these questions we must answer in the negative. The *so-called calcium lacto-phosphate* is nothing but calcium acid lactate. Our analysis of the substance, the quantitative titration of the amount of lactic acid not combined with the calcium, its formation by other methods which give the same substance with the same crystal form, solubilities and optical properties—all these show beyond question that the substance is calcium acid lactate mixed with a small amount of calcium phosphate.



## ITEMS OF INTEREST

*There is no phosphate radical in these sheaf-like crystals.* So if the sheaf-like forms were found in a saliva, one would not be warranted in assuming that erosion was present in that mouth; for there is calcium bicarbonate in the saliva (Hammerstein, 1904, p. 290), and lactic acid formed by fermentation would act upon this and give calcium lactate or acid lactate.

Furthermore, when calcium phosphate is dissolved in formic, acetic, hydrochloric, propionic or butyric acids and allowed to crystallize from these, sheaf-like crystals very similar to those of calcium acid lactate are often obtained, which show the same optical properties. So it is evident that cases of erosion by acetic, formic, propionic or butyric acids, all of which might be formed by fermentation and could dissolve the tooth substance, can not be differentiated from Dr. Kirk's case of lactic acid erosion by the sheaf-like crystals. In other words, as stated at the beginning of this paper, there are too many substances which look alike in crystal form for us to be able to decide what they are chemically by means of a microscope. In the accompanying photographs there are given many examples of crystals that show the sheaf-like form; such as calcium phosphate, zinc lactate, zinc acid lactate, calcium acid lactate, etc. These forms, when modified by varying conditions of the solution, etc., resemble each other too much to tell by the micro-polariscope whether or not they are identical.

Then, there is another phase of the matter. As stated at the beginning, each substance may look different under the microscope, dependent upon the time of crystallization, the concentration of the solution, the impurities in the solution, etc. Let us consider the case of calcium lactate. Here (1) is a case where the calcium lactate has a sheaf-like form. Again in (3) we have the same substance occurring in fine needles. Then, again (2) (4) here is calcium lactate with the heavy center and radiating needles that looks exactly like the round forms of tyrosin crystals taken from Boston. I submit, then, that when we have the same substance in pure state showing such different forms under the micro-polariscope, it is impossible to know that the substance may be this or may not be that. Who could say with certainty by merely looking at these round crystals of calcium lactate, without a chemical analysis, that they are not identical with Boston's tyrosin crystals? I venture to assert, that no reputable chemist would do so.

Let us now turn to the study of the calcium acid lactate—the *so-called calcium lacto-phosphate*. From the beginning we were in doubt that this substance is really a lacto-phosphate. Although not impossible. yet our knowledge of chemical compounds made it seem very improbable

**Calcium  
Acid Lactate.**



that such a compound would be formed under the conditions described by Dr. Kirk. Then there were other points to be solved which Dr. Kirk apparently did not think of. In the lactic acid fermentation there is formed not only lactic acid, but also formic, acetic, propionic (we recently discovered this), and butyric acids in appreciable amounts, varying with the time of the fermentation. Furthermore, the concentrated lactic acid (sp. gr. 1.21) used in our laboratories is made by fermentation, and contains the acids mentioned above, as I have verified. So it is apparent, that in order to study the chemistry of this compound it was necessary not only to treat calcium phosphate with ordinary lactic acid, containing the above-named acids, but also to treat the calcium phosphate with pure acetic, formic, propionic, butyric and chemically pure lactic acids and to study the crystals obtained from these solutions. Then, too, we studied the crystal forms of calcium acetate, calcium propionate, calcium butyrate, calcium lactate, and some of the acid salts of these, especially the calcium acid lactate.

The pure formic, acetic, propionic, and butyric acids are easily obtained in the market, but the *chemically pure lactic acid*, optically inactive and free from these other acids, is not listed even by Kahlbaum, the firm which makes a specialty of furnishing pure organic chemicals for scientific research. So we had to make the pure lactic acid as follows: When pure zinc lactate is dissolved in distilled water and hydrogen sulphide is passed into the solution, the zinc is precipitated as insoluble zinc sulphide and can be filtered off; the clear filtrate then contains the lactic acid formed and some hydrogen sulphide. When this solution is boiled, the hydrogen sulphide is expelled, and we have a water solution of pure lactic acid, free from the other organic acids, such as formic, acetic, etc. This water solution can be used directly for dissolving the calcium phosphate or can be concentrated on a water bath.

But we had no pure zinc lactate; so we had to make that from the impure lactic acid of commerce by neutralizing it with zinc oxide. The zinc lactate is very insoluble in cold water, but readily soluble in hot water; so it can be readily freed from the other zinc salts (formiates, acetates, etc.) by crystallization from water. So the first thing to do was to make a quantity of pure zinc lactate, and that was done as follows: . . . The lactic acid, 70 grams of 1.21 sp. gr. acid made by Kahlbaum, was digested in a flask with 60 grams of zinc oxide and 50 c.c. of distilled water some hours. The liquid was filtered off and allowed to cool and crystals of zinc lactate was obtained. The residue in the flask was digested with water again for some time, filtered and cooled and again a crop of crystals of pure zinc lactate was then obtained (A). The residue in the flask was then extracted with water in a Soxhlet extraction



## ITEMS OF INTEREST

Sample "A" 0.3006 gm. gave at 110° 0.0536 gm. H<sub>2</sub>O and by ignition gave 0.0827 gm. zinc oxide.

|   |       |
|---|-------|
| Zn. ( $C_6H_{10}O_6$ ) .3 $H_2O$ calculated | found |
| $H_2O$ , 18.17                              | 17.83 |
| Zn. O, 27.36                                | 27.51 |

Sample "B" 0.3007 gm. gave at 110° 0.0545 gm.  $H_2O$  and by ignition gave 0.0832 gm. Zn. O.

|  |       |
|--|-------|
| Zn. $C_6H_{10}O_6 \cdot 3 H_2O$ calculated | found |
| $H_2O$ , 18.17                             | 18.13 |
| Zn. O, 27.36                               | 27.67 |

Sample "C" 0.3000 gm. gave at 110° 0.0546 gm.  $H_2O$  and by ignition gave 0.0830 gm. Zn. O.

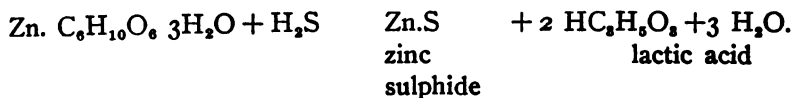
|  |       |
|--|-------|
| Zn. $C_6H_{10}O_6 \cdot 3 H_2O$ calculated | found |
| $H_2O$ , 18.17                             | 18.20 |
| Zn. O, 27.36                               | 27.67 |

Sample "D" 0.3000 gm. gave at 110° 0.0544 gm. H<sub>2</sub>O and by ignition gave 0.0834 gm. Zn. O.

|  |       |
|--|-------|
| Zn. $C_6H_{10}O_6 \cdot 3 H_2O$ calculated | found |
| $H_2O$ , 18.17                             | 18.13 |
| Zn. O, 27.36                               | 27.80 |

The above analyses shows that all of the samples of zinc lactate were pure.

Five grams of sample "B" were dissolved in 100 c.c. of hot water and hydrogen sulphide was passed into the solution until all the white zinc sulphide was precipitated out, the reaction taking place as follows:



After the solution was allowed to stand for some time the zinc sulphide was filtered off, and the filtrate was boiled some time to drive off the hydrogen sulphide and to concentrate the solution, which was after-



ward concentrated to a low volume on a water bath. This gave us then a solution of lactic acid which had been freed from all the formic, acetic, butyric acids, etc., present in the impure lactic acid.

In order to obtain the *so-called* calcium lacto-phosphate from this pure lactic acid, we proceeded as follows: 1.5 grams of Kahlbaum's best tricalcium phosphate was warmed gently with the above lot of purified lactic acid in 25 c.c. water for some hours. It was then filtered from the undissolved calcium phosphate and divided into two equal parts (a) and (b). One part (a) was boiled and a precipitate of calcium phosphate was formed. This is a phenomenon which Dr. Kirk does not mention at all.

**Test of  
Calcium Phosphate.**

That this substance is calcium phosphate was proved as follows: By dissolving some in nitric acid, adding silver nitrate to this, and then adding ammonia gradually, when the solution became neutral a heavy yellow precipitate of silver phosphate was formed. When some calcium phosphate was treated with concentrated hydrochloric acid, it gave the dull red flame-test characteristic of calcium salts. That there was no organic matter—no lactic acid or lactate—contained in this precipitate was proved as follows: Some of the substance was mixed with finely divided copper oxide and heated in a curved tube, one end of which was closed and the other end dipping into clear lime water. No turbidity showing the presence of carbon dioxide was formed, nor was the copper oxide reduced to copper in the slightest degree. Yet a small amount of triphenyl-guanidine equal to one-tenth the bulk of the calcium phosphate used in the above test gave at once carbon dioxide and reduced the copper oxide to copper. So there is no appreciable amount of organic matter in the calcium phosphate formed above. It should be said once for all that this same precipitate was obtained several times, from both pure and impure lactic acid solutions, and in every case it was examined as here described. But in every case it proved to be pure calcium phosphate.

**Calcium  
Acid Lactate.**

The other part (b) of the solution of lactic acid containing the dissolved calcium phosphate was allowed to evaporate spontaneously over sulphuric acid in a desiccator, and there was formed a mass of crystals of the substance which Dr. Kirk calls calcium lacto-phosphate, but which is *calcium acid lactate*. This substance is in this state mixed with some calcium phosphate, some phosphoric acid and some lactic acid and water. It can be freed from the phosphoric acid, the lactic acid and the water by treating it thoroughly two or three times with absolute ether. It can be freed from nearly all the calcium phosphate by dissolving it in water, filtering from the undissolved calcium phosphate and



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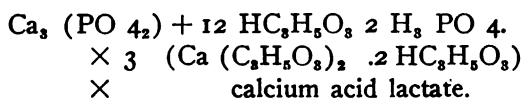
allowing the solution to evaporate again as before. The solid so obtained is nearly pure calcium acid lactate; it is very soluble in water, but insoluble in ether, is acid to litmus paper, and the amount of lactic acid not combined with the calcium can be estimated by titrating the substance with standard alkali and phenol-phthalein as indicated. When allowed to crystallize out from water, it forms generally beautiful sheaf-like forms, which rotate polarized light, and at the same time show beautiful colors. The analysis will be given below.

The same substance was formed when 25 grams of commercial lactic acid, Kahlbaum's sp.g. 1.21, in 400 c.c. water, was warmed with 25 grams of calcium phosphate for some time. The undissolved calcium phosphate was filtered off and the solution boiled, whereupon a precipitate of calcium phosphate was formed in large amount. This was filtered off, and the filtrate was evaporated on a water bath to a low volume and allowed to crystallize. The crystals were digested twice thoroughly with absolute ether to remove the phosphoric acid, lactic acid and water, and were then filtered off and dried in a desiccator. These are the same calcium acid lactate, containing a small amount of calcium phosphate mechanically included. They show the same solubilities, crystal form, optical behavior, chemical behavior, etc.

Finally, the substance was made also, as follows: Pure calcium lactate in water was treated with the theoretical quantity of lactic acid to make calcium acid lactate and the solution was evaporated to crystallization. The calcium acid lactate so obtained had the same crystal form, optical properties, solubilities and chemical behavior.

So there can be no doubt that Dr. Kirk's *so-called* calcium lactophosphate is *calcium acid lactate*. But how is this calcium acid lactate formed from the calcium phosphate and the lactic acid?

The following equation will express the reaction:



We may ask, "Is it not surprising that the lactic acid can displace the phosphoric acid in the calcium phosphate; be neutralized by the calcium phosphate and form calcium acid lactate?" We have only to remember that lactic acid has been proved by physical chemical means to be a fairly strong acid, and is present in considerable excess in these experiments, and to remember further that strong acids always displace weak ones from their salts, and it becomes clear that the above reaction is the one that we should expect. So when Dr. Kirk says (page 596, *Dental*



*Review*, July, 1905), that "the committee did not know that lactic acid cannot be neutralized by calcium phosphate," he was in error in regard to his chemistry.

In the following we have the analyses of the sample of calcium acid lactate made from pure lactic acid (1), and that made from commercial concentrated lactic acid (2). It will be seen as mentioned above that there are small amounts of calcium phosphate mechanically included in these, and the method of analysis gives us a method of determining this amount.

**Analysis of  
Calcium Acid  
Lactate.**

(1) 0.3040 gm. required 15.60 c.c. N/10 KOH; calculated, 15.28 c.c. (2) 0.2613 gm. required 13.56 c.c. N/10 KOH; calculated, 13.13 c.c. (1) 0.2613 gm. by ignition gave a residue of 0.0630 gm. This required 5.50 c.c. n/5 Hcl and phenol-phthalein to neutralize the CaO, or equals 0.0308 gm. CaO and 0.0322 gm.  $\text{Ca}_3(\text{PO}_4)_2$ . (2) 0.2786 gm. gave by ignition, treating with  $\text{HnO}_3$ , and igniting strongly, 0.0650 gm. solid, which required 65 c.c. N/5 Hcl to neutralize the CaO, or equals 0.0364 gm., CaO and 0.0286 gm.  $\text{Ca}_3(\text{PO}_4)_2$ .

From 1° and 2° it follows that

(1°) 0.2312 gm. calcium acid lactate gave 0.0308 gm. CaO.

(2°) 0.2500 gm. calcium acid lactate gave 0.0364 gm. CaO.

Ca  $(\text{C}_3\text{H}_5\text{O}_3)_2$ , 2  $\text{HC}_3\text{H}_5\text{O}_3$ , calculated found

|     | (1)   | (2)   |
|-----|-------|-------|
| CaO | 14.07 | 14.56 |

These analytical data, then, show us that the substance is calcium acid lactate, mixed with about 10 per cent. of calcium phosphate.

**The Cause of  
Local Erosion.**

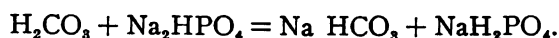
In his article in the *ITEMS OF INTEREST*, 1902, page 518, Dr. Kirk puts forward a view on the cause of local erosion, ascribing this phenomenon to the action of sodium dihydrogen phosphate, or calcium acid phosphate. In the article in the *Dental Review*, July, 1905, page 602, he again states that the acidity of the exudate from the mucous glands of the lips of people suffering from local labial erosion "is due to the presence of dihydrogen sodium phosphate."

Let us now examine this theory. Dr. Kirk states that "where, through faulty metabolism, carbonic acid is produced out of normal proportion, as in gouty diathesis, then not only the kidney, but also the buccal glands take up this same action, and we have the conversion of disodium



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phosphate into the acid sodium phosphate in those glands, their exudate slowly eroding the teeth." He then gives the following equation:



I must now point out that this reaction proposed by Dr. Kirk is probably incorrect. Carbonic acid can not convert hydrogen disodium phosphate into dihydrogen sodium phosphate. Indeed, if Dr. Kirk were to turn this equation just the other way around, he would have more nearly the truth. The fact is that sodium dihydrogen phosphate and sodium bicarbonate give carbonic acid and disodium acid phosphate, just the opposite from what Dr. Kirk claims. A simple experiment will show this. Dissolve some sodium dihydrogen phosphate in water and add the equivalent amount of sodium bicarbonate. We at once see the vigorous evolution of carbonic acid gas and the solution contains the disodium acid phosphate. The reaction is as follows:



Furthermore, another set of experiments will prove the same point. If Dr. Kirk's hypothesis is true, then, if we introduce a weighed amount or quantity of disodium hydrogen phosphate dissolved in a given volume of water, into a graduated apparatus containing carbon dioxide, the amount of carbon dioxide absorbed in the solution should be that required to saturate the solution (a very small amount) plus the amount of carbon dioxide necessary to convert the disodium hydrogen phosphate into sodium dihydrogen phosphate. When the experiment is tried, the amount of carbon dioxide absorbed is very little more than that necessary to saturate the solution with the gas.

These experiments show, then, that Dr. Kirk's explanation of the cause of local erosion can not be correct. Carbon dioxide can not act upon disodium hydrogen phosphate to form more than a very small quantity of sodium dihydrogen phosphate. The fact is, the reaction takes place in just the opposite way; carbon dioxide and disodium acid phosphate are formed from sodium diacid phosphate and sodium bicarbonate nearly quantitatively. The explanation is very simple. Phosphoric acid and sodium diacid phosphate are many times as strong acids as carbonic acids and consequently displace carbonic acid practically completely from its salts.

Not only is Dr. Kirk's hypothesis untenable, but it is also unnecessary. Dr. Kirk made experiments on the saliva from the labial or buccal mucous glands of those individuals suffering from this particular erosion.



He found acids to be present and phosphates present also. From this he concluded that the acid must be sodium dihydrogen phosphate, but he describes no experiments to show that the particular phosphate is not disodium acid phosphate or calcium phosphate instead of dihydrogen sodium phosphate, nor does he describe any experiment to show that the acids may not be organic acids instead of sodium dihydrogen phosphate or calcium dihydrogen phosphate.

As a matter of fact, if the labial or buccal mucous glands are giving off organic acids, or any other acids, and also phosphates (which they normally do), this saliva would cause the local erosion and would, of course, give the test for acids and phosphates. The only thing necessary for the local erosion is the acid in the saliva, whatever the nature of that acid.

It is clear, then, that Dr. Kirk's hypothesis in regard to the cause of local erosion is not only chemically impossible, but entirely unnecessary to explain the facts.

In conclusion, I would like to say a few words about the probable cause of the general and local erosion. I am continuing the work along these lines and hope to be able to report fully later. But at present I can say that all the cases of erosion that have come under my study have been those produced by acids and not by alkaline saliva. I believe that the particular kinds of organic acids producing the erosion vary with the individuals and even with the same individuals at different times. It seems probable that the acid saliva contains not one, but perhaps several different acids, and the one present in largest quantity will naturally vary with individuals and with the same individual under varying conditions of climate, food and health. Further study will probably show that even other organic acids, not now thought of, are also concerned in this phenomenon. The subject is one of great difficulty and progress can be made only by a great deal of careful experimental work along chemical and physiological lines.







## President's Address.

By RODRIGUES OTTOLENGUI, M.D.S., New York.

*Read before the American Society of Orthodontists, New York, December, 1906.*

### *Fellow Members of the American Society of Orthodontists:*

At the outset let me thank you for the honor conferred upon me by all of you in choosing me as your President for the last year. With me this is no empty phrase, no perfunctory words, but the simple statement of a fact. I have felt greatly honored to be President of this Society, and I do thank you. For what is the American Society of Orthodontists?

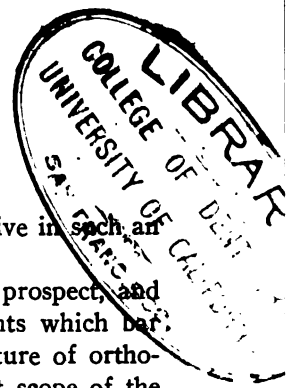
Orthodontia is becoming, *has become* a science; a science so entwined with art, that the orthodontist performs the dual function of healing and beautifying the most attractive, the most important part of the human body. Could there be a higher calling?

### **The Prospect of Orthodontia as a Separate Specialty.**

Within the last decade a movement has been inaugurated looking towards the separation of orthodontia from the general practice of dentistry. This Society was organized to assist this project. Orthodontia is to-day already recognized as a separate specialty. The better class of dentists are abandoning the desultory attempts at tooth regulation of the past, and are cheerfully turning over that part of their practices into the care of the orthodontia specialists. And this present status is very largely due to the influence and to the teaching of the members of this society. Therefore again I say it has



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been an honor to occupy for a year the post of chief executive in such an organization, and once more I thank you.

It would be well for us at this time to calmly view the prospect, and gazing along the path of the future to measure the heights which bar the way and the abysses which must be spanned. The future of orthodontia! I doubt if even those present comprehend the vast scope of the work which lies ahead. I know that the general practitioner does not. May I attempt to place before your eyes just a kaleidoscopic view of the horizon as I see it? Let your minds travel back to the landing of the Pilgrim Fathers upon Plymouth Rock! Crossing at last that devoted band felt safe, and fell upon their knees in thankfulness to God. Yet were they safe? They were on dry land at last, yes! But what knew they of the vast continent to the West of them; of the savage hordes in their very vicinity?

I liken you of this society to that little group of men. You have this society, and you are recognized as specialists in orthodontia. In the one you have landed upon the Plymouth Rock of your faith, and in the other you have reached the dry land of your ambition. Do you recognize the immensity of the work yet ahead for this society? Half a century from now, the dental historian will publish the roster of this society and call you the pioneers in the new movement. Pioneers are leaders. Do you know the roads?

In the main the so-called regulation in the past has meant the straightening or aligning of teeth. I state dogmatically that the chief purpose was to correct that which was unpleasant to look upon. To leap the chasm from the distant past to the pregnant present, the real work of the orthodontist to-day is to render as nearly perfect and useful as possible the mechanism of mastication. The mouth is the portal of health, as it too often is the inlet for disease. Food is absolutely required to sustain life, and the more thoroughly masticated it is, the more perfectly will it be assimilated with the least strain upon the other organs involved in the process. That man who has given little thought to this will say perhaps: "What rot; people can chew just as well with crooked teeth as with straight. Don't they always occlude; never mind how crooked they are."

It is this sort of crass ignorance, my friends, that you must go out into the wilderness and preach against. In the first place crooked teeth never occlude, and any set of teeth in malocclusion will perform its function imperfectly in exact proportion to the extent of that malocclusion.

But let us grant for an instant the wrong hypothesis above stated, that people may be able to chew with crooked teeth. The answer is, "Not



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only would the same person chew better with teeth in true occlusal relation, but he will be able to chew with them longer, for every malposition is a menace to the tooth in exact proportion to the departure from normal.

**Orthodontia and Prophylaxis.** Neither dentist nor orthodontist sees many absolutely perfect teeth, because the happy possessor of a perfect set of teeth would have no need of either.

His sound teeth would constantly contribute to the soundness of his bodily health, and his sound body, with all organs properly nourished would in turn offer no menacing regurgitations to his teeth. Thus the most important phase of prophylaxis to-day not only dental but of general prophylaxis, is the close scrutinizing of dental arches, and reference to an orthodontist that all malocclusions, however slight, may be promptly corrected. Orthodontia is the great preventive measure of the future. It is the prime promise of the abolition of disease. The subject of heredity is too vast a one to be touched upon seriously in this address, but Dr. Rhein, I think it was, who at the last meeting of the Stomatological Section of the American Medical Association prophesied that Orthodontia would in time delimit itself. That as soon as two generations of human beings have perfectly occluding teeth, their progeny will no longer pay us large fees for straightening teeth.

**Occlusion in Relation to Physiognomy.** I am fully aware that the art side of our work is important. But I contend that it is nevertheless secondary, and for this reason: There is no definite basis of art; no final measure of beauty; no authorized arbiter as to which is the handsomest countenance.

Therefore, one man may alter a set of crooked teeth, and so change the face of the individual as to produce a result entirely in accord with his own estimate of art; a face even pleasing to many. Yet the teeth may not have been arranged so as to occlude.

But we do have a final standard of occlusion, and whenever we can rearrange crooked teeth so that they can be measured by that standard, then we achieve the highest function as a masticating apparatus, place the teeth where they will occupy the safest locations against the ravages of disease, and within five years that face will have assumed a configuration which every one will call an improvement on the original, regardless of what his standards of art and beauty may be. In briefer language, we may beautify a face without doing the best for the occlusion, but if we obtain the best possible occlusion of a given set of teeth, we always attain the most beautiful form of face possible in that individual.

What then is the closest duty pressing upon us as members of this society? It is this. We must cultivate such relations with general practitioners both of dentistry and medicine that we may be enabled to con-



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vince them of two important facts. First, that the orthodontist and not the dentist should do the work. Second, that the dentist, not the orthodontist should find the work.

Dentists should be made to see that the slightest malocclusion is a menace to the future of the dental organs. He should therefore be on the constant watch for malocclusion, and ever ready to advise orthodontic interference as the most important of all prophylactic measures.

**A Question of Ethics.** It follows therefore that our relations with dentists, rhinologists and others should be very close, and if close should they not be thoroughly ethical? This brings me to the blot upon our escutcheon.

I have said that the members of this society in the future will be called Pioneers. Would you have those same historians record the fact that we were false leaders, that we were not true professional men, but that we were tainted with commercialism?

When the young dentist fresh from his Alma Mater begins his professional battle, how does he start? How does he build up a practice? Suppose you knew such a young man, and you discovered that he had visited the butcher, the baker, the stationer, the cigar store man, the barber, all the trades people in his neighborhood, and had made the offer of a commission on the bills of all patients sent to him? Would you think that young man was starting out right? If wrong for the young dentist, why should it be right for the orthodontist?

**The Question of Commissions.** This question of commissions is to my mind a very serious one, and without bias of any sort it should be calmly discussed, viewed from every aspect, and then definitely settled for all of our members.

There are of course many excuses to be made for those who have given commissions, though less for those that have accepted them. In the first place it is done in connection with other specialties. It has been condemned by the more honorable of medical men, but it has never been stamped out, and is still carried on to a great extent. Indeed to a much greater extent than can be known because the arrangement is generally secret, which fact alone condemns it almost without further argument. No medical man makes a secret of the fees which he receives direct from his own patients for his own work; why then make a secret of the commissions obtained through reference of patients to other men? There is only one answer. No, there are two. Some are ashamed of it. Others who know not shame, realize their patients would never return did they know of these secret fees.

Orthodontia specialists are both few in number and new in the field. Many have given up general and perhaps lucrative practice to take up this



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specialty. Moving into one of the larger cities such a man feels himself a stranger and in a difficult position. Without the countenance and even assistance of the dentists he must make slow progress in building up a paying practice. He consults with the dentists of the place, and many advise him to offer commissions; some even promise him patronage on those terms. Many of the practitioners who have done this are men of standing, men of national reputations. Thus has it been reasonable for our members to adopt this tempting advice coming from such sources and affording apparently the shortest road to success. Nevertheless, I think it has been a grave mistake, and such a mistake as will hamper the life work of every man that follows the course.

Let me put this proposition to you from two aspects, that of the receiver, and that of the giver. First, then, as to the recipient of the commission. Should any honest man accept a dollar which he does not earn? Certainly not. How, then, is this commission earned? What does the general practitioner tell himself that he does for that patient, or for that orthodontist in exchange for that fee, for we have agreed that he must earn it to be entitled to it. The service which he does for the orthodontist is that he provides him with a patient, furnishes him with work. This can not be disputed, and in any similar transaction between trades people, as when a man sends another a customer for a house, the commission is a perfectly honest payment for services rendered. But certainly it is not professional. Wherein lies the difference, you ask? I will tell you. In all business relations the business man acts on his own responsibility; he must safeguard his own interests. The purchaser of a house thoroughly comprehends this at every stage of the transaction. He intends to get that house for as little money as possible. He knows at the same time that the seller will get every dollar he can. The game is open. The agent or intermediary therefore who arranges terms on which the buyer will buy, and the seller sell, injures nobody, and inasmuch as he has contributed to the deal he is entitled to the preagreed commission. With a patient it is entirely different. He places himself, his life, his body, or that of his wife or child, into your keeping. He knows nothing of the conditions. He has faith in you, and acts by and on your advice. If you recommend him to an oculist he goes. If to a rhinologist he goes. If to a specialist of any kind he goes. Has the practitioner a moral right to trade upon that trustfulness, to take a commission, and without the knowledge of that trusting patient?

But the commission taker tells you that he serves the patient because he selects a competent man to do the work. That sounds good, for just about a minute. Does he select that specialist because he knows that he is the best? Or that at all events he is good enough? Or does



he send the patient thither because he gets a commission from that man? If he knew another orthodontist, just as capable, living ten miles nearer to that patient's house, but who did not give commissions, would he send the patient there, or to the man that gives commissions? I am sure that some would say, "I would certainly consult the patient's convenience, if the other fellow was just as good." To such I answer, "Sir, you deceive yourself. You would never think him as good, if he paid no commissions." No my friends, while a hundred excuses have been offered for accepting commissions, I have never heard one that I could not utterly destroy with a logical and convincing response. In the final analysis there is but one reason for accepting a commission, and that is to get money without working for it.

Let us turn now to the question of giving commissions. I frankly admit the usefulness of a commission as a practice builder, for a while. But observe that I qualify that usefulness. After a while the commission scheme will hamper instead of advance progress. Thus there are two sides to this aspect of the question: the utility of commissions, and the moral right to give them.

I am convinced, mainly from the experiences of others that the giving of commissions will lead any man into a most adherent quagmire of difficulties. The ramifications indeed are too great to follow. There is one important tangle however, worth mentioning. I am satisfied by my own experience that the future of the orthodontist, as with the dentist, must depend upon the impression he makes with his own personality, with his own work, upon the people with whom he comes into contact. It is not my custom to mention my own affairs, but I can not refrain from accentuating this fact by so doing here. I have this winter received the majority of my new patients through other patients; three from physicians unknown to me, but who have cared for patients of mine and so have seen my work, and only one patient has been referred by a dentist. True I do not give commissions. But even this one case referred by a dentist, leads us back to the troubles of the commission tangle. The child had been taken to her regular attendant who advised that she is too young, and she is rather young, so that man must not be condemned. But the parents were not willing to wait, and asked the advice of another dentist, who was an acquaintance. This man advised consulting me. The parents then returned to their regular dentist and he acquiesced in the consultation. In quite similar instances known to me both dentists have claimed commissions. Dentists who accept commissions likewise have often demanded commissions for patients recommended by patients first recommended by them. Thus the orthodontist who once starts giving commissions, lays a trap for himself into which he must inevitably



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fall. He ties a chain and ball around his feet which will prevent him from building up his practice along the truest lines, by the recommendation of pleased patients. From the statistics of my own practice above cited, I am sure that this community at least is awakening to the necessities of correcting malocclusions, and that from this time on there will be a rapidly increasing demand in this and other large cities for competent orthodontists. Good practices can be built up without paying commissions to dentists or rhinologists. On the other hand a good business can not be built up in any other manner.

As to the moral side of it, I am sure I am on safe ground in condemning the practice. Every man is entitled to as large a fee as his patient can afford to pay; and conversely every true orthodontist must stand ready to accept many cases for small remuneration, where the patient's means are limited. Therefore we can not do justice to ourselves nor to our patients if we must ever have the idea of a commission in our minds. Men say that they can pay commissions without charging the extra amount to the patient, but in this they are self-deceived. It can not but be a factor in fixing the fee for the wealthy parent, nor can it but hinder us in accepting the child of the poor man. Therefore I argue that the commission method is both unprofessional and immoral.

I feel that I would be derelict in bringing up this topic for discussion, without offering a remedy. Like all cancers it must be cut out, and the sooner the better. And I think that it is the paramount duty of this, the first associated body of orthodontists in the world, to heroically apply the knife and set the standard which all others will feel compelled to follow. Some of our members I have no doubt are fulfilling agreements to pay commissions. Such men of course are bound to keep their contracts in regard to patients already received, but I recommend action by this society which shall prohibit any of our members from ever again receiving a patient upon a commission basis, and I advise the adoption of the following standing resolution:

*Resolved*, That in the opinion of the members of the American Society of Orthodontists, the practice of paying a commission, honorarium, or any sort of fee in consideration for the reference of a patient is both unwarrantable and unprofessional; and be it

*Resolved*, That the payment of any such commission, honorarium or fee, by any member of this society shall be sufficient cause for the expulsion of said member, by vote of the Society after conviction; and further be it

*Resolved*, That in case of co-operation in the care of a patient between a general practitioner and an orthodontist, there shall be no division of fees, but each man shall render a separate bill for his personal services.



It is my view that the spirit of the above should be regularly engrafted within our constitution, either as a part thereof or in connection with a code of ethics which might be adopted, though personally I am opposed to codified ethics, unethical men rarely becoming ethical because of printed rules. For the present, and at this meeting, I think it would be wise to adopt this as a standing resolution.

I believe that a committee should be appointed to so revise our constitution that some of the ambiguous sections therein may be made more explicit. I say this because all the officers during the past year have been hampered in their work because of different interpretations of some of the language of our constitution.

In conclusion I wish once more to thank you for the honor of having filled the post of president for a year. I believe medicine, the art that heals, to be the highest and noblest calling to which man may devote his life. And of all the branches of the healing art, what more attractive, more beautiful, more honorable than to take into our care the children of men, and by our labors to make them more perfect and beautiful men and women?

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### **Discussion of President's Address.**

**Dr. Chas. F. Ash,**  
**Brooklyn.**

I do not believe that the average general practitioner wants to assume the responsibility of doing the orthodontia work for his patient. Personally I have done almost none of it. I have allowed a great many cases to go undone because I did not feel sufficiently competent to attempt the work myself, and there was not a man practicing the specialty of orthodontia near enough at hand to make it possible to refer the patients to him.

Passing on to the question of commissions, your President has in a measure stolen my fire. I have known from time to time of the questions which have been in the minds of practicing dentists and orthodontists about commissions, and as I said before, every question has two sides, but I believe there is very little which can be said in favor of the payment of commissions by professional men: I do not believe it admits of much discussion. I believe the man who is an honest general practitioner of dentistry is not as capable of taking care of the regulation of his patient's teeth as the man who makes it a specialty. So therefore, if he be honest, and wishes to give his patient the very best service, he will recommend him to the man who makes orthodontia his special work. And further, if he is honest, he can not expect a commission.



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### Two Claims for One Commission.

I have known of a case in a comparatively short time where the dentist said to the parent, "This little girl's teeth should be regulated." The response was, "Well, Doctor, don't you think you should better go ahead and do it?" The dentist said, "I am not a specialist, and consequently not so well fitted to do it. I would recommend Dr. Jones." A very short time afterward, the father, with the little girl, while walking in the park, met a dentist who is a friend of the family. He picked up the little one and said, "Let me look at you." He said to the father, "This child's teeth ought to be regulated." The father replied, "Yes, I understand that is so." The dentist said, "Take her to Dr. Jones: I will give you a letter of recommendation, etc." Dr. Jones, when called upon, looked over the mouth, saying: "Yes, the child needs the services. It should be undertaken at once." So they proceeded to make an arrangement to have the work attended to. The orthodontist discovered a cavity needing attention. He said, "Here, take the child over to Dr. Smith and have this filling done and send her back to me." "But Dr. Smith is not our regular dentist, only a friend of the family," was the reply. "Dr. Brown is our regular dentist." So over they go to Dr. Brown to have the tooth attended to, and come back. After the orthodontia work is finished, Dr. Jones sends his commission to Dr. Smith, because he believes Dr. Smith recommended the patient. Dr. Brown interviews Dr. Jones, and compliments him on the work he did in that case. Nothing further is said. One day he said: "By the way, has Mr. X— paid his bill yet?" "Why yes," replies Dr. Jones. "Well, I thought perhaps I might have received a check by this time." "Why, I sent that check to Dr. Smith." Dr. Brown says: "Well, I recommended the patient in the first instance, etc." The result was a grand mixup in the matter of commission. I think finally one-half of the commission was allowed each one of the dentists.

As I have already said, I do not think the question admits of much discussion. I do not think a man who is honest with his patient can afford for his own sake, or the sake of his patient, or the sake of his conscience, to be dishonest in the matter of commissions.

**Dr. F. S. McKay,  
St. Louis.**

I feel it is somewhat of an unfair advantage to take of one who has as much on his mind as your secretary, to ask him to discuss so important a matter as the President's address. I must confess to a feeling of disqualification.

I was pleased to hear Dr. Ottolengui speak of this Society as a body of pioneers, as I believe that represents, in the truest sense, our position. We are pioneers, and when the history of orthodontia is written, there



will be no question but that we will be given that credit freely, and be recognized as the pioneers in the true orthodontia. Pioneers of various sorts are historically in high esteem, and I ask, could there be anything more honorable than being known as pioneers in such a field as orthodontia? That is, as being the first men to really apply basic principles to such a work as this, for the betterment of humanity. It seems to me an idealistic position in which we find ourselves. How the real object of orthodontia has changed since first conceived! It used to be considered a matter of looks entirely, or nearly so; now we go beyond; we allow the looks to take care of themselves; if we create or restore normal occlusion, the looks are safe. The real object is to restore, or make possible, perfect function.

I can not help thinking of what a close connection

**Fletcherism.** there is between this viewpoint and the writings and teaching of a man named Horace Fletcher. He is a layman, a citizen of the world; a man of wealth, who has devoted his energy and fortune to one grand object, namely mastication. His works show a deep and broad study of the processes of mastication, and the physiology of digestion. He carries to excess, you may say, the function of mastication. He would have people chew, and chew, and chew their food, reducing every mouthful to a liquid before swallowing. He would even have you chew liquids, so to speak: he insalivates a mouthful of coffee, tea, wine, or anything else that has taste. He extracts every particle of taste there is in a food substance. His claim is that buccal digestion is thereby made perfect, and every particle of food is prepared for the stomach. Furthermore, one who practises what is known as "Fletcherizing" their food, he claims, would need and consume a much smaller quantity of food than by the ordinary method of eating. If you will watch in any restaurant, you will see that the average person masticates with too little thoroughness. I have experimented in this way, for instance: while eating at the table with a party of people, who were served with the same kind of food, I have noted how many "chews" a certain individual requires to prepare the mouthful of food for swallowing. In one instance of a young lady, frail and anemic, the average was eleven to fifteen for a mouthful of the same character of food that required me one hundred and ten to one hundred and thirty. It impressed me greatly with the average neglect in this function.

I am not a crank on Fletcherism, but if that proposition is correct, and I believe it is, is there not a definite relation between the ability to masticate and the occlusion of the teeth, the apparatus we have to masticate with? If we are going to masticate properly we must have as good a



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masticatory apparatus as we possibly can have, and that is the work of the orthodontist pré-eminently, I believe.

It may seem queer to speak of orthodontia as a prophylactic measure, and yet I believe with our President, it is one of the greatest—if not the greatest of prophylactic measures. The proper contact point, mesio-distally, and those other conditions which go to make up a finely finished case in orthodontia, establish the best prophylactic conditions in the mouth.

### **Art in Orthodontia.**

The Doctor said there are no definite rules for art; therefore the face alone is not a good point for diagnosis from which to treat malocclusion, and I think that is perfectly true. On the other hand, occlusion is a definite thing, and it therefore must be a proper basis for diagnosis and treatment. I wonder, on the other hand, if Dr. Ottolengui realizes how much our ideas have changed in the past few years with reference to art in relation to orthodontia? Types are now considered above everything else, and not any set standards. As Mr. Wuerpel, of St. Louis, has said recently, there is no standard of beauty. It depends upon who is looking at a thing as to its beauty. I therefore feel that in any given type, when we have placed the teeth in normal occlusion we have done the best for that individual, as an individual, that we can possibly do in our own sphere of action.

### **Commissions.**

As to this matter of commissions, I am glad it has been brought up. I feel that the time has come when definite action one way or the other is called for. It is hard for any one of us in his own community working alone to establish a new order of things. We are simply units here, there, everywhere, all over the world. But when action is taken as a body, each man in his own community feels that he has the moral support of all to back him up in his position. The best way to make changes is by concerted action.

In the main I agree with the essayist, and yet I feel that there are arguments which are familiar to most of those present, which would render this practice not altogether unwarranted. I believe, however, that the standing of orthodontia would be raised and bettered by the abolishment of commission giving in any form of division of fees.

### **Dr. Milton Watson, Detroit.**

I desire to express my profound appreciation to Doctor Ottolengui for the courageous and judicious manner in which he has handled a delicate subject, my only regret being that the matter did not receive similar attention years ago, before the evil became so thoroughly rooted.



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I began my practice by giving a commission, as did nearly all the members of this Society, and I continued it long enough to see the many evils associated with it. To enumerate them would simply be to repeat many of the points so clearly brought out in the address. I could, however, relate some additional experiences, showing its tendency to make men deceitful, and deception has no place in the professional man's career. One with any sense of honor must at times have been keenly embarrassed, who has ever been a party to any "commission arrangement," regardless of whether he has given it or received it.

The impropriety of being connected with a plan of such a character finally became clear to me, and I determined to discontinue it, and made an announcement to that effect to every dentist from whom I had ever received patients. It is only fair to say at this point that there were a number of men who never accepted any commission, and still others who soon saw the evil of such an arrangement, and asked that it be discontinued. I believe arrangements whereby one either offers or receives "inducements" of any character for the reference of patients is positively and unqualifiedly wrong, and I hope every man in this Society will hold up both hands for the adoption and rigid enforcement of the resolutions offered by our President.

**Dr. Ash.** When I was speaking before, I said Dr. Ottolengui has stolen my thunder; I meant this. I have given this matter of commissions some thought, and to this extent: I had no knowledge that Dr. Ottolengui was to introduce this resolution, but had already arranged in my mind a resolution which I intended presenting before the meeting of the Second District Dental Society, along the same line, against receiving commissions. I believe with the President, that the only way to get rid of this commission business, is to absolutely "cut it out," and the only way to do that is to cut it out from both sides. If the American Society of Orthodontists will put their members in a position where they can say to men sending them cases, that they are compelled to refuse paying commissions, under penalty of losing their standing or membership in their Society, it will be a step made in the right direction. Then, too, I think the dentists should be in the same position, and I propose that such a resolution shall be presented at our next meeting, which I hope you gentlemen will attend. The resolution will come up for action at the following meeting. I want the moral support of your presence when the resolution is read.

**Dr. Easto, Cleveland.** I am heartily in favor of the resolution as presented by Dr. Ottolengui, and am thoroughly in accord with the movement. As regards experiences, I have not had a great many. I have paid some com-



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missions. It was my intention to treat all the dentists alike, but I found, as I had been informed, that a great many of the men would not accept commissions in the community where I was located. I gave commissions because I had been led into it by the older men in the specialty. I understood at the beginning of my career, that it was a custom followed by most of the men. I understood it was legitimate and fair, and I felt it was at that time, but as I see now, and I have felt for several months, it is something which should be terminated, and I believe this is the time to terminate it. As Dr. McKay has said, we feel we need the moral support of the Society of Orthodontists behind us.

In regard to this address, I think we are all very proud of the courage Dr. Ottolengui has shown in bringing the matter of commissions up as he has done. I think we are fortunate also in that he is able to view the question from both sides, from that of the general practitioner as well as from the standpoint of the specialist.

It seems to me that one of the main points in this matter is the question as to the service that is rendered. It is the duty of any man to his patient to refer him where he can get the best services, in case it is something he does not wish to do himself, and that is a service which can not be paid for. I would feel most degraded to accept from one of my patients a fee for referring him to some other man for work I do not wish to do myself, and I have had occasion to send many patients for special services. That is a service which I owe that patient: it is a question of honor between myself and the patient, and no fee can compensate for it.

In talking this matter of fees over with a prominent surgeon, and as you all know it is a matter which comes up there also, as I am told some surgeons pay commissions, he took this stand: He says you have no right to accept any fee from a patient without telling that patient what the fee pays for. If you are willing to discuss the matter with the patient, then you are honest, and if the patient chooses to give you the fee with that understanding, it is all right. For instance he says, "I often give part of my fee to a physician, but I never do that without explaining the matter to the patient. I say to them: "So much of the amount it will cost you is for me for the operation, and so much of it is for the physician who takes care of you afterward. That commission pays for something; for the care of the patient." In the same way I can see where an orthodontist might be justified in giving a commission, or rather, dividing the fee, but not for referring the patient.

I am glad to have the opportunity of indorsing this resolution: I hope it will be carried, and certainly think it is the opportune time for it to be adopted by this Society.



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Dr. Ottolengui has brought up points which are vital to the specialty of orthodontia. Look at this matter of commissions! We have limited ourselves to the practice of orthodontia, and have cut off all the rest of dentistry.

If we are to adopt this resolution we must make it binding on ourselves, and the men outside this Society as well. If the resolution goes through, a copy of it should be sent to every dental magazine and published.

I believe when the resolution is taken up, it should clearly differentiate between a commission and the division of a fee. The division of a fee must be known to the patient, and the man who gets a part of the fee—say the dentist—must do some actual work in the case; he must take charge of and assume a part of the responsibility.

I feel that this Society, with such noble aims and principles, will have washed the only stain from its garments when it has adopted this resolution.

I feel greatly encouraged, because not long ago when I started as a specialist in this work, I determined to enter the field as cleanly as possible, and I offered no commissions, nor will I do it. I stand or fall on that principle. Possibly a practice might be secured sooner by following the other plan, but not better.

I want to thank Dr. Ottolengui personally for bringing this matter up. It is an opportune time. The Society is in a position to accept this resolution; in doing so it is going to put us on such a high plane of professionalism that no man can raise a finger against us. We will do clean work founded on noble principles.

I was surprised to hear the President make this reference to commissions. It has all been a surprise to me. I did not know commissions were ever given!

I have gone so far in my own practice as to refuse to take any money in advance from the patient. If he paid a part of the fee I was obliged to carry the work ahead under any circumstances. On the other hand, where no payment had been made in advance, if the patient did not do as I told him, and put himself completely under my charge, I could dismiss the case.

I did not know a commission was ever offered except by hotel men. A hotel man came to my office with a Cuban; he said he wanted me to correct the boy's mouth in a certain length of time. The patient had to go back home in a short time. The hotel man wanted a commission for bringing him to me. I said, "I can not do the work in the time specified, and as to a commission, you will have to go somewhere else." The thing



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you discharge your cook for when he goes to the grocer, I am surprised to find being discussed here.

If a man sends a patient to me to secure my services in the regulation of his teeth, or any other services of which I might make a specialty, and expects me to hand him a commission, I would not take the case under any circumstances.

**Dr. Lloyd S. Lourie,** I would like to say a good deal on the subject of commissions, but am afraid I am not a clear enough  
**Chicago.** thinker to extemporaneously clothe my thoughts as

I would wish to present them. I want to express my appreciation of Dr. Ottolengui's address, and for his fine wording in setting forth our ideals. Our ideals may be epitomized sometimes in someone's else words, and thus brought home to us more forcibly than we would ordinarily conceive them.

I wish to heartily indorse the idea of our President as to the matter of commissions, and I think there will certainly be no dissenting voice to the passage of the resolution. I think Dr. Barnes's suggestions are good with reference to sending this resolution to the dental societies.

I want to add a word of testimony along this line.

**Dr. D. Willard Flint,** The only sleepless night I have had since I engaged  
**Pittsburg.** in the practice of orthodontia was because of this commission business. When I started a year ago to

specialize, I "cut it out," and during that time never gave anything. Over a difference as to sharing fees I feel I have lost the influence of one man that I valued very highly.

I can not sufficiently express my delight that this has been brought up at this meeting. We talked it over around the dinner table at Chicago, and it was hashed and rehashed, but now we can see the solution to a serious problem, especially serious for the young man just beginning. I felt a great relief when it was brought up here, so that we can have some backing when we stand for what we consider a better standard of ethics.

**Dr. F. A. Pullen,** It is with much pleasure I listened to his very  
**Buffalo.** able address. The President brought out very prominently in his paper the subject of commissions, although he has at the same time presented before us

our highest ideals and aims. I am sure we all feel grateful for the good he has done us with his Journal; I fear we are not half appreciative of this good. I believe the Society could not have made the advancement it has in the past few years without the aid of ITEMS OF INTEREST, the pages of which have been given so willingly, regardless of the expense of the illustrations and text.

Concerning commissions, we all know we have made errors in the



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past, and I am sure from the applause to the remarks that have been made on this subject, that our hearts are all tuned to the same key in wishing to abolish the commissions absolutely from our practices.

I believe if the Society takes this action, as recommended in the resolution of the President, and by motion, that it will be the first Society on record to express itself in this manner, and in future we shall look back with much pride on the record established in this matter.

I am glad the President has invited me to speak.

**Dr. F. M. Baker,**  
**Boston.**

I wanted very much to speak on this subject, but not being a member of the Society I am situated much like the Scotchman who was groom for a gentleman.

The gentleman went out to order his horse and found the Scotchman drunk. He said, "You are drunk!" "No," the groom replied. The Scotchman then grew angry. He said, "I am not drunk. Got! I wish I was!"

I am much interested in the subject. I have been practicing orthodontia for thirty years. While not a specialist exclusively, I have for the past ten or fifteen years made it my exclusive work almost entirely.

The matter of commissions is a serious subject with me. I do not believe in commissions, but as stated by your President, there are two sides to the question. I may quote two cases that came under my observation. Something like fifteen years ago a dentist brought a case to me for orthodontic services. I told him, in reply to his question, that I did a good deal of that work. "What commission am I to get out of it?" he says. "What do you want?" was my reply. "What you usually pay." I said, "You are the first man who ever asked me to pay him a commission." He was disgruntled, and I lost the case.

The next case I recall was sent me by a friend only a few years ago. I asked if he wanted anything out of it. He said, "Doctor, I do not feel just as though I should take a commission, but a man can not turn over a case without giving it some of his time." There is some truth in that, too. I think the line to work along is to get the general practitioner to realize that it is unethical to receive a commission. There are many times when we would have to pay a commission or lose a case, provided Dr. Smith and Dr. Jones are paying commissions.

**Dr. F. C. Ferris,**  
**Brooklyn.**

I am heartily in accord with everything I have heard here to-day on the subject of commissions. It is of particular interest to me, as I am just starting in the practice of orthodontia as a specialty. I recently returned from Dr. Angle's School, and to say I am enthusiastic would be putting it very mildly. I have endeavored to practise orthodontia in the past, but as I look at my cases now, after my education in the



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West, I feel my efforts have been almost lost. I am anxious, I almost feel, to take up the case of every patient I have ever worked for, and do the work over again.

**Dr. F. G. Kemple,  
New York.**

So far as experience in commissions is concerned, my own has been nil. I have never given a commission. When I came to New York to practice orthodontia I was somewhat at sea on this question. I did not know whether to give commissions or not. In this uncertain state of mind I consulted a dentist here in New York, and this gentleman told me that he had never accepted a commission. He said if a commission should be sent to him by a specialist he would return that portion of the fee to the patient, as he had done on one occasion, because he would feel that he had done nothing to earn that percentage, and if the orthodontist had been remunerated for his work by that portion of the fee which he had retained, the portion which had been paid as a commission was an overcharge which rightfully belonged to the patient. He therefore advised me not to pay commissions, but to take that much off the fee for the patient, and gentlemen, I thought his advice was sound.

I have located here in New York, and I pay no commissions nor divide fees, nor present the dentist who refers the case with a beautiful hunting or fishing outfit, because I believe the honest, conscientious dentist, who has ideals and lives up to them—and, by the way, there is a great difference between the man who preaches ethics and the man who lives ethics—does not want a commission.

In the case cited here this morning where the dentist picked up the little child who was playing in the park, and glancing at her mouth, told the father that the child should have her teeth regulated, if that man made two hundred dollars in that way it is an easy method of making money. I use the term "making money" advisedly, for this "professional gentleman" certainly did not earn the money through professional knowledge, skill, or service. It is clearly a case of accepting money without giving value received.

There may be some slight responsibility attached to the dentist who refers a patient to a specialist. If the specialist lacks ability and his operations result in failure it reflects unfavorably on the dentist who recommended him, but money does not compensate for such responsibility. The dentist should make it a point to know the ability of the specialist to whom he refers his patients.

I feel very much in accord with the sentiment expressed at this meeting in regard to the commission proposition.



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**Dr. O. W. White,**      The resolutions as advocated by the President in  
    **Detroit.**      his address to-day can not but meet with general  
                    approval from the society.

As I have just entered the profession of orthodontia, it is impossible for me to speak with experience on this subject.

I have talked with a number of orthodontists who have come to grief from this practice. My neighbor Dr. Watson tried the plan of giving commission for cases referred to him. He has told us of the embarrassing positions he has been placed in. When these conditions exist there must be something wrong, and if wrong should be stopped.

The only man who has advanced any sort of solution to this problem was Dr. Dodson, of Grand Rapids. A dentist is entitled to remuneration for time spent on a case and he may render a bill for service or consultation. But this bill or statement should go to the patient, not the orthodontist, as service was rendered to the patient.

It is very important that this question should be settled now before the evil grows, so that the professional standing of dentistry and orthodontia are not injured by it.

**Dr. Ottolengui.**      I am more than ever proud of being President of  
                    such a lot of fellows. I want to discuss primarily  
                    the matter of the division of fees. There must be absolutely no such thing as the division of fees. On that point let me make my position perfectly clear. The dentist, in a technical sense, makes a division of fee with the laboratory man when he sends a certain portion of a given piece of work to the laboratory to be done, and the patient knows nothing about it; often he does not even know the laboratory assistant; there is an agreement between the dentist and the laboratory man to do a certain share of work for a certain sum of money, but it is no division of fee; that is paying the laboratory man for specified work. The responsibility remains with the dentist.

In the course of your work if you find it necessary to have something done by a dentist in the mouth of your patient for which you are responsible, you must pay the dentist for it. Make no division of fee, but pay the dentist his fee for the service which he renders.

There is only one circumstance where I can imagine a rightful division of a fee. That is where a dentist is taking care of a patient in an adjacent town; he has some capabilities but he wants your supervision of the work, your advice, and wants you to put on the appliances and tell him what to do. You should send the bill for your services to the patient; and the dentist should send the patient his bill for his work.





## **The Anesthetization of Dental Pulp by Nerve Blocking and Pericemental Injection.**

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By DR. HAROLD S. VAUGHAN, New York, N. Y.  
*Read before the Central Dental Association, October, 1906.*

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About five months ago, through the courtesy of my friend, Dr. F. L. Fossume, I had the opportunity of meeting Dr. Kjennerud, a dental chemist of Norway, who was in this country in the interest of a local anesthetic which he had discovered. He claimed that by the injection of one or two minims around a tooth, the pulp would be anesthetized and that the most sensitive cavity could therefore be excavated without pain.

Dr. Kjennerud introduced his remedy into Norway and Sweden about one year ago, certain dentists paying him large sums for the exclusive right. It was his intention to make similar arrangements in this country, after completing his European contracts. With that end in view, he most zealously guarded his secret and returned home without leaving a drop of his preparation behind. He consented, however, to give a demonstration on a patient secured by Dr. Fossume. The cavity was a mesial one in a right upper central incisor, and proved to be very sensitive; but after the injection of a small quantity through the gum on the palatal side the operation was rendered entirely painless.

Two or three days later, I secured a patient with an exposed pulp in the left upper second bicuspid. After Dr. Kjennerud had made an injection I was able to painlessly remove the pulp.

Dr. Fossume arranged for two other demonstrations, one of which was not so successful. The reason given by Dr. Kjennerud was that he



had a new technique, suitable for certain cases, that could not be divulged at this time.

After discussing the matter with Dr. Fossume, I decided to carry on some experiments with the various local anesthetics, both alone and in combinations, in order to try and get a solution of greater anesthetic power than cocaine alone.

As a basic solution I used a normal saline 3-4 of 1 per cent., to which was added enough adrenalin to make a 1 in 1-30,000 solution, a saline solution being less irritating to the tissues than plain water.

The adrenalin chlorid acts powerfully as a vaso-constrictor, increasing the duration of anesthesia. To this basic solution I added cocaine hydrochlorate, tropocaine and the following synthetic anesthetics: Stovaine, betaeucaine and acoine in combinations, injecting them in my arm in five minim doses and studying them as to duration and area of anesthesia, amount of irritation produced and after effects. I will not attempt to give the result of all the injections, though I found that various combinations of the synthetic anesthetics and combinations with cocaine were no more potent than the single solution. I have tabulated the effects of the single solution:

| <i>In basis solution.</i> | <i>Duration.</i>           | <i>Area</i> | <i>Irritation.</i>      | <i>After effects.</i>  |
|---------------------------|----------------------------|-------------|-------------------------|--|
| Stovaine<br>1 p.c.        | Anesthesia<br>for 2 hours  | 2 cm.       | Erythema lasting 3 days | Soreness on pressure for 3 days  |
| Acoine<br>1 p.c.          | Anesthesia<br>for 2 hours  | 1.5 cm.     | Marked erythema         | Soreness on pressure with skin slough over site of injection 4 mm. in diameter |
| Eucaïne B.<br>2 p.c.      | Anesthesia<br>for 2 hours  | 1.5 cm.     | Hyperemia 3 days        | Soreness on pressure 3 days  |
| Tropocaine<br>1 p.c.      | Anesthesia<br>for 1 hour   | 1 cm.       | Slight hyperemia 1 day  | Soreness on pressure 1 day   |
| Cocaine<br>1 p.c.         | Anesthesia<br>for 2½ hours | 2.5 cm.     | Slight hyperemia 1 day  | Soreness on pressure 1 day   |

As a result of these experiments I found:

1. Cocaine to be superior in anesthetic power.
2. Less irritating.
3. Milder after effects than any of the synthetic remedies; while tropocaine, which is an associated alkaloid, is much less potent in anesthetic power.

I then made as my regular solution one containing cocaine, 1 per cent., phenol 1-400, and adrenalin chloride 1-30,000 in the normal saline solution.



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The phenol increases the anesthetic power of the cocaine in addition to being antiseptic and preventing the development of fungi in the solution. This combination seemed to be the most satisfactory and is the one used in my experiments, though I have made some two, three, four and five per cent. solutions.

We will next review briefly the anatomy of the pericementum and alveolar processes, together with the nerve supply of the teeth:

### **Anatomy of Processes.**

The alveolar processes are made up of two plates of compact bone, the external and internal; the space between these plates is occupied by the alveoli or sockets of the teeth. The long partitions between the alveoli are less dense than the plates, making it possible to penetrate this spongy bone for a certain distance, with a sharp syringe needle. The alveolar process is covered by periosteum, which dips into the alveoli, forming the dental periosteum or pericementum which is firmly adherent to the wall of the alveolus and cementum of the tooth, thus holding the latter in place.

At a point just within the margins of the alveolus, the fibrous tissue passes horizontally between the root of the tooth and the alveolar wall, while toward the apex they pass obliquely, being attached to a point higher on the root than the alveolar wall, so that the tooth is swung in its socket. The fibres around the apex are spoken of as the alveolar-dental ligament.

### **Vessels of the Pericementum.**

The pericementum is a highly vascular tissue, deriving its blood supply from three sources:

1. From the vessels at the apical end of the root.
2. By vessels from the alveolar periosteum.
3. Through vessels of the Haversian canals in the alveolar walls.

The gums are made up of highly vascular dense fibrous tissue, firmly adherent to the periosteum beneath, and covered by mucous membrane.

### **Nerve Supply of Teeth and Gums.**

The *nerve supply* of the teeth and gums is through the second and third divisions of the fifth. The superior maxillary nerve, while in the sphenomaxillary fossa, gives off the posterior dental branches which accompany the posterior dental artery. On the zygomatic surface of the maxilla small filaments pass to the gums and adjacent mucous membrane of the cheek and antrum while others pass through the posterior dental canals to the molar teeth. The middle dental branch is given off from the superior maxillary nerve on the posterior part of the infraorbital canal; it is directed downward and forward in the canal on the outer wall of the antrum to the bicuspid teeth. The anterior dental branch arises near the infraorbital foramen and passes down the canal in



the anterior wall of the autrum to the incisor and cuspid teeth. These three nerves form anastomotic loops from which branches descend through the small bony canals to the apical pericementum, where they divide; some filaments enter the apical foramen to ramify in the pulp, forming a plexus beneath the odonto-blastic layer; other branches ramify through the pericementum, anastomosing with filaments from the gums and alveolar periosteum. The posterior part of the hard palate, with its overlying gum tissue, is supplied by the anterior palatine nerve from Meckel's ganglion which descends through the palato-maxillary canal, while anteriorly it is supplied by the nasopalatine which passes downward along the side of the vomer, through the anterior palatine canal and Scarpa's foramen.

The mandible is supplied by the inferior dental nerve which is a continuation of the posterior trunk of the inferior maxillary nerve. It passes beneath the lower border of the external pterygoid muscle to reach the interval, between the ramus of the jaw and the internal lateral ligament, where it enters the inferior dental canal which it traverses, sending branches to the teeth, gums and body of the bone. At the mental foramen, which is situated on a line with the root of the second bicuspid and midway between the superior and inferior borders of the jaw, the nerve divides into incisor and mental branches, the former supplying the incisor and cuspid teeth, while the latter emerges to supply the gums, chin and lower lip, communicating with the facial.

From the above review, we see that the dental pulp may be anesthetized in several ways:

**Methods of  
Anesthetizing  
Pulps.**

1. By injection into the pericementum, the needle entering the gum near the neck of the tooth and then being directed against the root of the tooth to be anesthetized, the solution reaching the nerve as it enters the apical foramen.
2. By penetrating the outer or inner alveolar plate, opposite the apex, and then injecting.
3. By direct injection where the pulp is exposed, as in pressure anesthesia.
4. By injecting around a nerve at a proximal point and thus blocking the impulses; as, for instance, injecting around the inferior dental nerve at the mental foramen to anesthetize the teeth distal to this point.

The inferior dental foramen is situated at a point too far back to be reached in this manner. Deep injection at the tuberosity of the maxilla would probably reach the posterior dental nerves. The middle dental can not be reached readily as its groove lies on the inner surface of the outer wall of the antrum.

As the anterior dental nerve is given off from the infraorbital canal



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near the foramen, it can be reached by injection into the infraorbital foramen. Such injection anesthetizes the superior incisor and cuspid teeth and, probably, the bicuspid through the anastomatic connections. Of course injection at this point anesthetizes the palpebral, nasal and labial branches, producing anesthesia of the upper lip, side of nose and lower eyelid.

The syringe should be all metal with strong finger rests, and a large end on the plunger to fit the hand. The needle must be rather small, of the best quality steel, with point well sunken into the shank.

### **Technique of Pericemental Injection.**

The spongy bone between the sockets is less dense than the compact inner and outer plate; the needle should therefore be inserted near the base of the festoon that dips into the interproximal space, preferably on the labial and buccal side for the lower teeth, and the palatal for the upper. It is forced slowly in, at the same time injecting a little of the solution ahead, thus minimizing the pain of insertion. The point is then directed into the pericementum as high up on the root as possible; the spongy bone can usually be perforated thus, allowing the needle to reach the root at a point higher up. Several minims are then injected, using considerable force to drive the solution to the apex, thus anesthetizing the nerves as they enter the apical foramen.

The second method, that of penetrating the outer or inner alveolar plate, opposite the apex, and injecting the apical tissues, I have not had occasion to try as yet.

The third method, that of injecting directly into an exposed pulp, is useful in those cases where the pulp has been only partly anesthetized by the pericemental injection. It can then be easily completed in this manner.

At the present time I have used pericemental injection for pulp extirpation in thirty cases, and in that number have anesthetized molars, bicuspid, cuspids and incisors, as shown by the following list:

|                             |   |
|-----------------------------|---|
| Lower third molars .....    | 2 |
| Upper third molars .....    | 3 |
| Lower second molars .....   | 2 |
| Upper second molars .....   | 2 |
| Lower first molars .....    | 3 |
| Upper first molars .....    | 3 |
| Lower second bicuspid ..... | 3 |
| Upper second bicuspid ..... | 3 |
| Lower first bicuspid .....  | 2 |
| Upper first bicuspid .....  | 2 |



|                             |   |
|-----------------------------|---|
| Lower canines .....         | 1 |
| Upper canines .....         | 3 |
| Lower lateral incisors..... | 2 |

The fourth method, that of blocking the nerve impulse at a distance, I have carried out successfully at the mental foramen, the teeth being anesthetized as far as the median line on the side of injection and back to the second bicuspid. As yet I have not observed if the anesthesia extends beyond this tooth.

For the majority of cases, I find a 1 per cent solution strong enough; in others, a 2 per cent. is better. I have used as high as 4 per cent. and 5 per cent., but do not consider this necessary. When using the strong solution, or a large amount of the weaker ones, I usually give from 3 to 10 minims of Volasem.

**Formulae.**

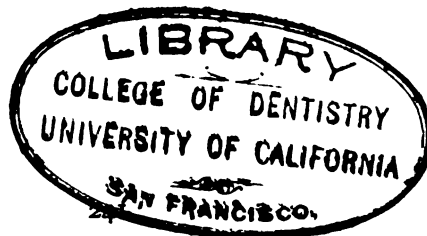
|                              |          |
|------------------------------|----------|
| Cocaine hydrochloratis ..... | gr. x    |
| Adrenalin chloridi .....     | m. xv    |
| Sodii chloridi .....         | gr. viii |
| Phenol .....                 | m. iij   |
| Aquae sterile qsad .....     | dr i     |

The solution must be kept in amber colored bottles, away from the light.

**Indications for  
Pulp Anesthesia.**

Pulp extirpation is the most important one, as in cases of pulp exposure, where its removal is necessary. Instead of using arsenic trioxid, with its uncertainty as to the amount of pain it will cause and the length of time it will take, the pulp can be immediately anesthetized and removed, the root being filled at once if necessary. Of course the rubber dam should be applied and aseptic precautions observed, to avoid infection and a resulting pericementitis. Other indications often arise, such as the grinding of a vital tooth for crowning hypersensitive cavities, etc. Of course, this is not at all necessary in the vast majority of cavities as the pain of their preparation is scarcely more than that of the needle insertion necessary for the above.

This paper is simply a brief resume of my experiments up to the present time.



March





## Cavity Preparation for Porcelain Inlays.

By CLYDE DAVIS, B.S., M.D., D.D.S., Lincoln, Neb.

Read before the Colorado State Dental Association, Denver, Colo., June, 1906.

In presenting to you the now almost threadbare subject, porcelain inlays, we can not reiterate the extravagant claims we have heard and read on this subject, as experience has not borne them out. However we must insist that porcelain inlays have their place and that there are methods of cavity preparation, that will invariably retain this class of filling.

The order of procedure in cavity preparation for porcelain does not differ from that where the metals are to be used. They are:

First requirement, access; second requirement, outline form; third requirement, resistance form; fourth requirement, retentive form; fifth requirement, convenience form; sixth requirement, toilet of cavity.

But the essential differences come in a modification of each step, hence a modification of the rules governing each step in the procedure.

**Access.** Adequate access is essential in the use of all filling materials, and the more unyielding the material used, and the larger the bulk to be inserted at once, the more complete and easy must be the access, so that in the insertion of inlays, of whatever nature, "access form" reaches its maximum. Chief among the means to gain access is separation, easily attained by the use of ligatured cotton, gutta percha packing, or immediate separation by the use of mechanical separator, all of which should be frequently resorted to when using *any* filling material, if we have any regard for contact point, tooth form, restoration and the prevention of recurrence of decay.

**Outline Form.** Let us consider the rule for cavity preparation where the common fillings are to be used, and note the slight changes made necessary for the use of an inlay, porcelain or otherwise.

For the metal foils or amalgam. *The cavity should be a combination of flat walls of dentine, coming together at angles the least bit acute surrounded by an enamel line which is made up of the largest curves permissible.*

For inlays of porcelain or metal, the cavity should be a combination of flat walls of dentine, coming together with *rounded* angles, the least bit *obtuse*, surrounded by an enamel line which is made up of the largest curves permissible.

You will note that the only modification in the rule is the rounding



of all line and point angles and changing the pitch of the walls to these angles, the latter modification entirely destroying the principles of retention used in the ordinary filling in one direction only.

**Resistance Form.** This is the weakest feature in the inlay proposition, and is best overcome by so preparing the cavity, that *"the access to the cavity is on the same line with that from which the filling is to receive its greatest and most frequent stress."* When this is possible the inlay may be subjected to great stress without the slightest injury, but when possible it must be protected from excessive forces, or else its use is contra-indicated. It would thus follow that cavities simple or complex, involving the occlusal in molars or bicus-pids, should move to exit only toward the occlusal. (See Figs. 1, 2 and 3, as illustrative.)

Incisal restorations should move to exit incisally only, while the approximal cavities in the six anterior should move to exit lingually only as in Figures 4 and 5. They may move to exit labially as in Figure 6, only when the caries of the cavity involving the lingual wall is not



FIG. 1.



FIG. 2.



FIG. 3.

extensive, and only sufficient to perfect our extension for prevention, in reaching a habitually self-cleansing surface.

**Retention Form.** As before stated in bringing our cavity walls to meet at obtuse line and point angles, we have completely destroyed all retention made necessary to obtain "draw," that the matrix as well as the filling may move in and out of the cavity without meeting resistance till that resistance is desired, and here we come forward with our cement and induce resistance to exit at the proper time as a final operation. We wish here to suggest that the retention of an inlay depends upon: (A) Friction of parallel planes with an adhering matrix; (B) The adhesion of the cement; (C) Mechanical retentions in all directions but the one of exit, which we have attempted to illustrate in Figures 2, 3, 4, 5, and 6. As to the principle



## ITEMS OF INTEREST

of friction retention which we here advocate as the main factor in the retention of inlays, it would follow that "The friction increases (hence the retention form) as we increase the number of parallel planes which have to pass before the inlay may change its direction of exit, also the extent of said planes and closeness of their adaption.

We are aware that this is a principle not advocated by some men prominent in porcelain work who advance the theory of adhesive cement as alone responsible, but cement alone has failed us, while the principle of friction on parallel planes will hold in place an inlay where fine particles of cement only intervene, till further decay gives chance for movement in a new direction.



FIG. 4.

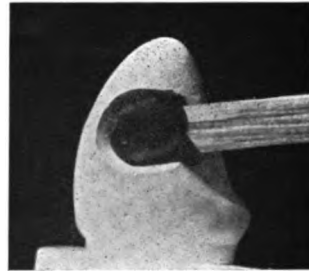


FIG. 5.

As to the adhesiveness of cement there is no doubt but that it is a factor in the retention of inlays, but it is mainly mechanical. While plastic it is easily introduced, but when set before the inlay can move it must slide on roughened walls or rotate in broken masses. It has the additional function of closing the joint and thereby removing the conditions for recurrence of decay. We prefer a coarse grained quick setting cement, a good resister of the oral fluids, but for its adhesiveness we care less, as all cements we have tried have failed to retain an inlay, when we have ignored the principle of "friction between parallel planes."

Convenience form is largely considered under access, yet it comes in again here: when we have completed the inlay an additional wedging may be necessary for final adjustment.

**Toilet of the  
Cavity.**

For filling other than inlays, the toilet of the cavity will come just before inserting the filling, while with inlays it is divided.

The consideration of the cavo-surface angle comes before the shaping of the matrix. Each filling material calls for



a different cavo-surface angle, for "*as the edge strength of filling material decreases, so increases the cavo-surface angle.*" That angle in cavities for metal especially, a metal inlay, may be very obtuse, as the edge strength of the metal is superb; while with the porcelain inlay a good rule is the right angle cavo-surface angle, as it is a question which has the greater strength, a porcelain margin or an enameled margin supported by dentine.

The remainder of the toilet of the cavity, its medication with antiseptics, alcohol and chloroform, must come just before final drying for the insertion of the inlay. Herein lies one of the inherent features of inlay work as all cavities should receive a chiseling of their margins after any moisture has reached them before final filling, which is not possible

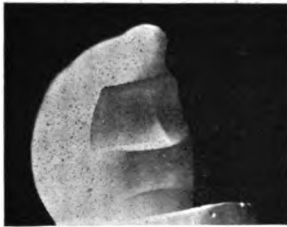


FIG. 6.



FIG. 7.

unless tooth is under the rubber from the beginning to the end of the entire operation, which would remove the main reason for using gold inlays (avoiding long sittings) and would be entirely out of the question, in using porcelain, owing to change of colors in desiccated tooth substance.

Before closing let us consider a method of making a matrix which will prove successful in any case, provided you move same to exit in one line only. By this method you may form a matrix without tearing same even though the cavity involves a part of an enlarged root canal.

#### **Method of Forming Matrix.**

The technic is as follows: Shape up a stick of soft pine to approximately fit the deepest recess of cavity. To make it more accurate add modelling compound impression (see Fig. 5), withdraw and shape up the matrix with the fingers and burnishers as in Fig. 6, place in position as in Figure 7.

Tease the matrix away from stick or impression, withdraw stick and use burnish method for balance, care being taken to pay attention to the deepest portion of cavity first. This method will make an inlay with porcelain post without rupture of matrix. Post may be strengthened by



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simply dropping an iridio-platinum pin into matrix, allowing it to stand above the junction of cavity and incorporating it in the body. If matrix is difficult to remove inspect your cavity for undercuts on line of exit. Dr. Allen's method, the use of gum camphor, will assist.

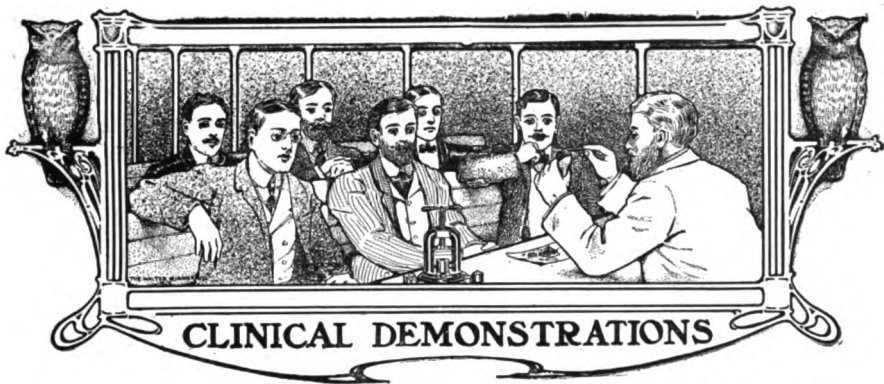
As to the fusing of porcelain attention is called to the article "Some Phenomena Observed in Fusing Porcelain," by Dr. J. I. Byram in *The Dental Review*, March, 1906. It is a radical departure in the teaching of porcelain new to date, yet every experience fully agrees with his deduction from extended experiments, which we append.

1. That porcelain has no definite fusing point.
2. By prolonging the time of exposure to heat, a thoroughly fused porcelain may be obtained at comparatively low temperature.
3. That porcelain fused at a low temperature for a long time will maintain its characteristic color.
4. That low fusing porcelain can be made of high fusing porcelain by repeated fusing and grinding.
5. If a piece of porcelain is thoroughly fused and more porcelain added and fused the first layer will be slightly overfused, etc., etc.

From this it would seem that porcelain acts not unlike vulcanite rubber, and that the best furnace is the one which makes it possible to gauge our heat exactly and to hold the desired temperatures, varying the time at will.







## Repairing Fractured Crown and Bridge Facings. New Method.

By W. FRANCIS MELLERSH, London, England.

There being nothing new under the sun, the following method about to be described may have occurred to other operators. I believe, however, it is original, inasmuch as I have not discovered any previous description of a similar one.

This process was tried by me five years ago to meet the exigencies of a difficult case where the facing had become detached from a first pre-molar crown. Since then it has been adopted in a number of cases with increasing satisfaction. A troublesome operation has been thereby rendered one of the easiest, special crown and bridge repair outfits and various patented and detachable facings being quite unnecessary.

Fig. 1 shows a small bridge with the facing broken away. After clearing away any fragments of porcelain remaining around the pins, the latter are covered with gutta percha or oxy-phosphate of zinc and trimmed so that an impression in foil can be easily withdrawn.

The procedure is the same as in producing a matrix for an inlay. Gold or platinum foil is swaged over the backing, the lateral surfaces of the adjoining teeth, and the adjacent gum, with wool or amadou. This foil impression is then removed on the end of a pencil of wax.

Invested in alcohol and asbestos and the wax removed, the matrix appears as in Figure 2.

A new facing is built up with body in the furnace, and appears as Figure 3. With the various porcelains now at our disposal there should be no difficulty in matching any tooth. After this has been allowed to

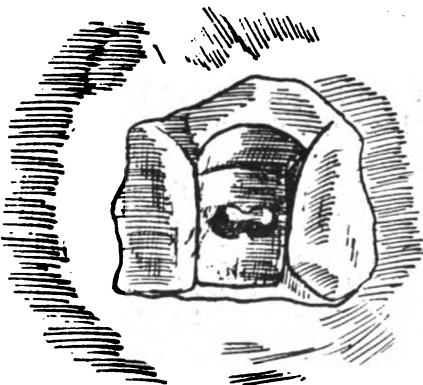


## ITEMS OF INTEREST

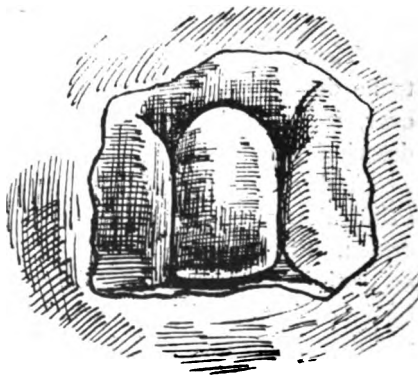
cool gradually to insure perfect annealing, the foil is stripped and the glaze removed from the back of the new facing, Figure 4, with hydro fluoric acid. Any overlap can be trimmed from the edges with a square-edged stone, and undercuts made with a very small diamond disk to insure a good hold for the cement around the pins. After roughening the surface of the metal backing with a fine graver, fixation is accomplished by



**FIG. 1.**



**FIG. 2.**



**FIG. 3.**

means of any cement suitable for inlay work. The whole is now varnished, and the facing held in place by wax cement flowed on to the sides of the adjoining teeth.

Means will readily occur to the operator whereby this method is applicable in cases where one or both pins are broken away from the backing.

Either high or low fusing body can be used, and if preferred the impression can be taken in dental lac and a matrix obtained by means of Ash's water-bag swager.



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The result, Figure 5, is an extremely neat and strong repair—ten minutes will suffice to make the matrix, and five minutes to cement the facing, the rest of the work being done in the laboratory.

For this work I have always used the porcelains of Messrs. Klewe & Co. (Dr. Jenkins' formulæ).

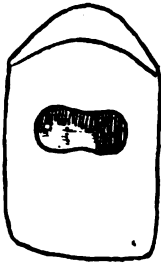


FIG. 4.

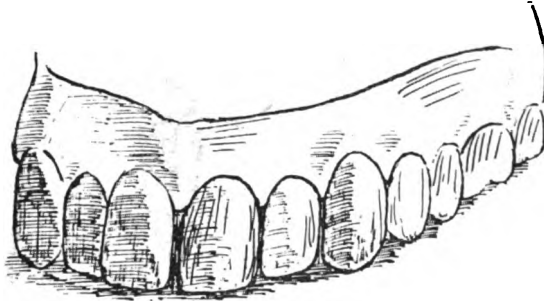


FIG. 5.

I am indebted to Mr. Howard Wordsworth for the illustrations herewith.

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### Method of Banding Roots for Porcelain Crowns with New Trimmers and Facers.

By J. C. HERTZ, Easton, Pa.

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The object of my method is to construct a crown with sufficient strength of band and porcelain which will have no tendency to irritate the gingival margin and prevent the band and porcelain from causing *unusual fullness* at the *labial margin*; also eliminating the necessity of shading, or adding on to the facing at the labial margin (by allowing the facing to extend under it).

To secure these advantages the canal should not be enlarged toward the labial or buccal surface in order to allow for the necessary reduction of the root for the ferrule and facing which is seen in figures 1 and 3.

The line of finished root should not be entirely with the gum line, but even labially, and finished 1-16 of an inch above the palatal gum line (when the bite will allow it).

The trimmers and facers I have designed to facilitate this shaping are seven in number. (Fig. 6.) Nos. 1 to 3 are safe sided to cut the



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shoulder or depression at the labial portion only, with a groove to indicate the depth to penetrate. They are used as a *drill*, held so the *thumb* has support on the *adjacent teeth*, but, after the first full cut, take only one-half the width of that first cut, which will guide and make it quite easy, and as

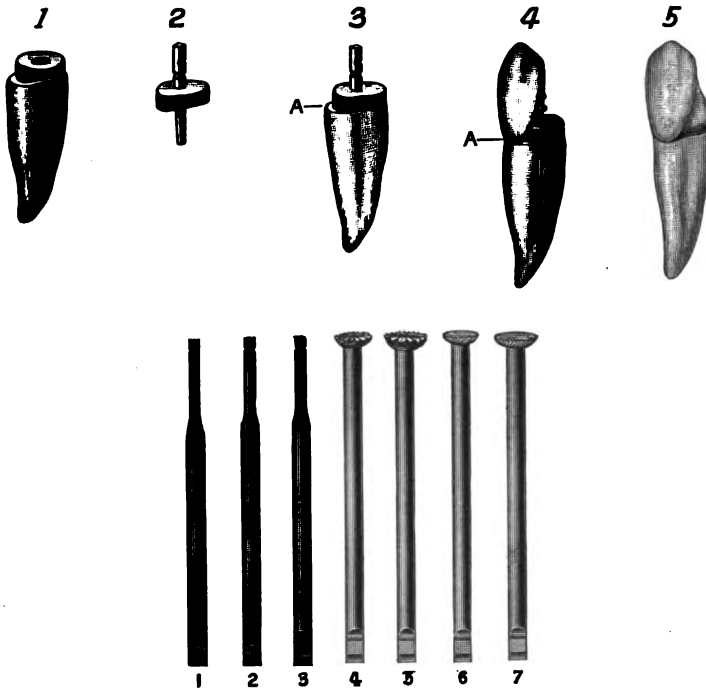


FIG. 6.

you approach the side take No. 6 or 7 trimmer, or small square end fissure burr to conform the angle. Nos. 4 and 5 are facers. Nos. 6 and 7 are safe sided trimmers used to even the depression and slightly trim on the sides and palatal portion. The band is conformed directly on the root, of No. 28 iridio-platinum, then soldered. Pure platinum of No. 33 or 34 gauge is used to complete the cap and allow ready adjustment of the pin, through small puncture in cap, which is secured with sticky wax, then removed and soldered with platinum solder, and replaced on the root. Any form of *facing or crown with or without pins can be used*, as I do *not* solder the pins of the tooth to the dowel. Figure 4 shows the adjusted facing, figure 5 the finished crown.

This is made practical by an investment used to secure the parts in their accurate position for the first biscuit, which is made by mixing two





parts plaster and one part of fine fire clay to a thick batter. Place upon a depression made in this while soft a 1-8 inch thick paste of asbestos (water with fine asbestos) ; place the face of the crown on this, and cover the metal parts with the plaster and fire clay, also the cutting edge.

Make investment very small to readily dry out and enter a small oven ; subject to slow heat ; remove the wax and place the body on. Then biscuit, after which cool, remove from the investment and finish as if soldered.

The *asbestos paste* is used to *prevent* the *etching* of the facing by contact with the plaster and fire clay. The heat should not be carried higher than to a good biscuit or the asbestos may affect the facing.

The different forms of facings and crowns with the various ways they are *grooved between* the *pins* to allow setting the facing sufficiently *low* on the *post* without regard to the *pins*, will occur to the practical hand, for the band being 28 *gauge* can be made narrow to adjust to a short root owing to its *strength*.

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## Making Gold and Porcelain Inlays by the Impression and Fusible Metal Matrix System.

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Clinic by Dr. R. M. CHASE, Bethel, Vt.

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Since January, 1900, I have given various papers and clinics upon making inlays with gold and porcelain by first securing an impression of the tooth cavity and duplicating the same in a fusible metal matrix or mold. From this mold a foil matrix is wholly or partially made for porcelain, or where a gold inlay is indicated, foil or any other style of gold is directly packed into the fusible metal mold. This system has so many advantages which enable the dentist after becoming familiar with its simplicity, to adopt it in preference many times when the older method of forming the foil directly into the tooth cavity is unsatisfactory. However to those who still prefer the latter method I have devised a set of Matrix Formers, Figs. 1, 2, to shape the foil directly into the tooth cavity. Also a camphor compound known as petro-camphor to enable one to remove the foil without destroying the shape.

Petro-camphor does away with the crumbling so annoying when simplex camphor is used and should be used as follows: After forming the inlay foil into the cavity, take a piece of the petro-camphor a little larger than the cavity and force it into place with an instrument or burnisher



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slightly warmed, after which place a drop of cold water against the compound which will chill it, and enable you to withdraw the matrix without change of shape. Before burning out the compound place a small gold foil cylinder endwise upon the compound when any excess

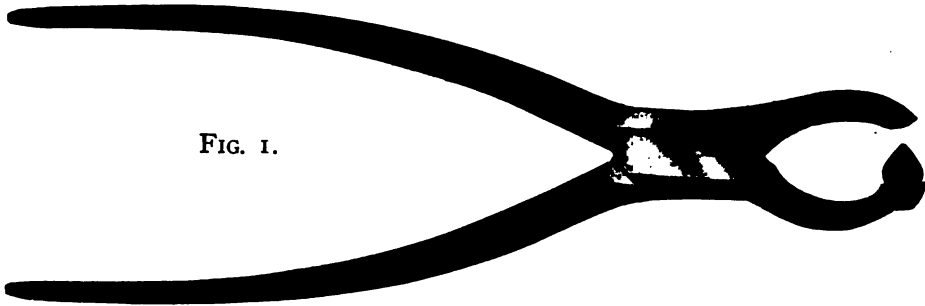


FIG. 1.

will be drawn up into the soft foil, leaving the foil matrix clean and bright.

In making porcelain inlays by the impression and matrix system while simple and easy, one should first familiarize himself with the little details to secure perfect and artistic results. A great deal depends upon

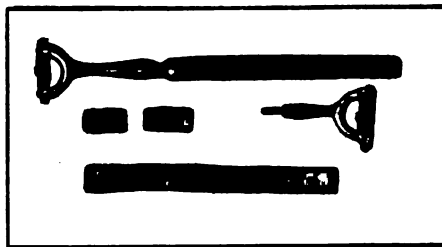


FIG. 2.

the proper shaping of the tooth cavity, which should be done thoroughly and with a view to artistic effects and adaptability to the mass of porcelain when finished. Make this one rule: to cut away sufficient tooth substance for easy access to the cavity, making the walls as near as possible at a right angle to the floor of the cavity and still have the orifice a trifle larger. To use a homely illustration, shape the cavity (so that when the inlay is completed it will fill the cavity) like a cork to a bottle. With a cavity so shaped there need be no fear of the permanency of porcelain inlays.



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### **Taking the Impression.**

Starting with a properly shaped cavity proceed to secure a reproduction of the same. Divide the cavities into two general classes. The first, that of the labial, buccal and crown varieties, are to be taken with what is known as the Chase impression compound. This compound copies and reproduces perfectly the most delicate lines and shape of the cavity and should be used as follows: Take a piece of compound half the size of an English walnut, working and kneading it with the fingers, tempering it so that it will be a little stiff. If too soft either roll in a napkin to absorb the excess of the glycerine or work into the compound a little powdered pumice; if too hard work into the substance a drop or two of glycerine. One or two trials will enable one to make it just right. Place the compound in a shallow crown impression cup or tray and work the center of the mass up to a little point or conical surface about the size of the cavity. Dip the fingers into talcum powder and rub the surface until it presents a shiny appearance. With the cavity, tooth and gum dry, press the convex point into the cavity with a firm hand. This will give a perfect impression of the cavity as well as the surrounding parts, the latter giving ample surface to enable the adjustment of a strip of band material without disturbing the cavity impression. The band should be as large as the surface of the impression will allow. Carefully adjust the metal band or ring into the compound around the cavity impression; see that the edge of the band sinks into the compound to prevent the molten metal from escaping underneath.

### **Making the Model of Cavity.**

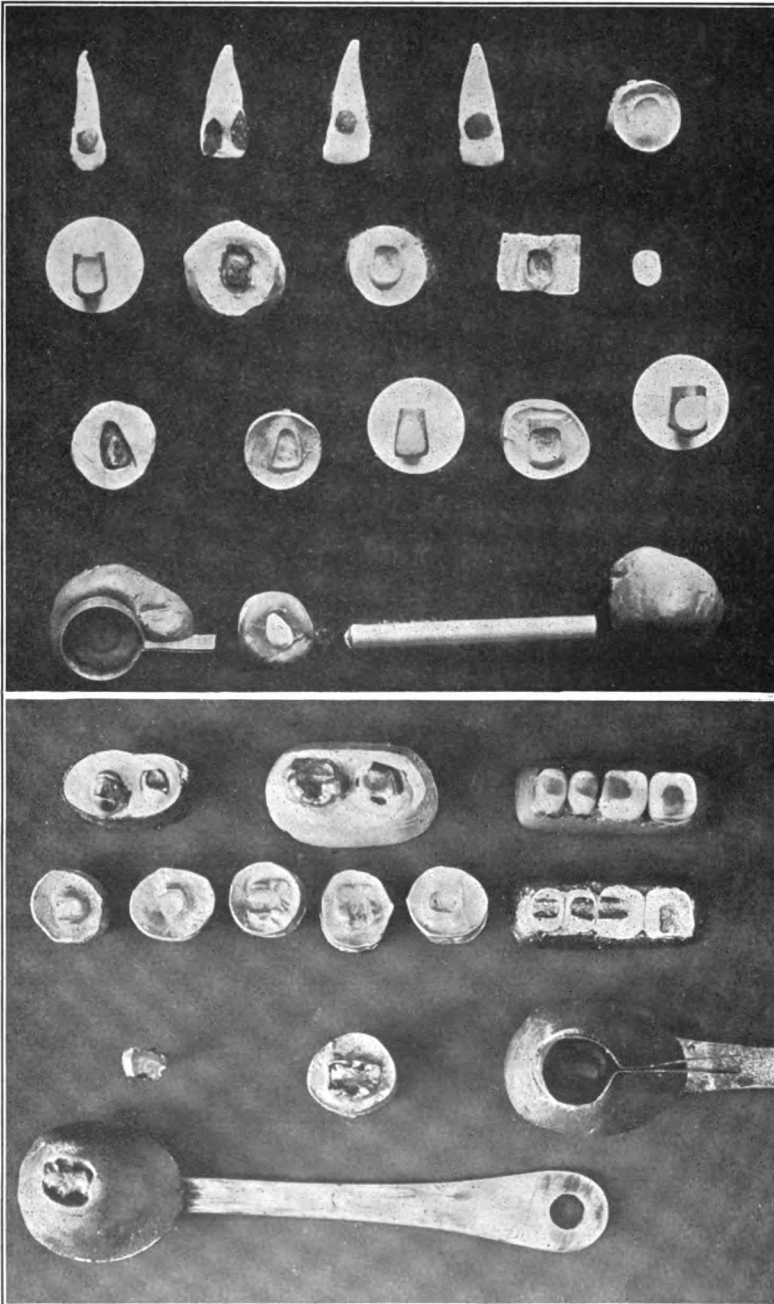
Heat two bars of Chase's fusible metal in a spoon or ladle to a degree that will just char or brown white paper. When this is done pour into the band on to the impression. As soon as the metal is cool, separate, and a perfect fac-simile of the cavity will result. Paint the floor of the matrix and about two-thirds of the depth of the cavity with shellac varnish, leaving about one-third of the depth of the cavity from the edge without any varnish. When dry proceed to burnish the gold or platinum foil into the mold preferably by the aid of the Chase Matrix Former. This will obtain a perfect foil matrix which will give the finished inlay sufficient space between it and the floor of the cavity for the cement to hold the inlay. In making a gold foil matrix in the metal mold a little vaseline should be brushed over the metal mold to prevent the foil from adhering to the baser metal.

### **Impressions of Approximal Cavities.**

The second class consists of all the cavities in the approximal surfaces and should be taken with Chase's special cement which is prepared expressly for approximal cavities. The first step, and the all important one, the lack of which has caused many failures, is



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space between the teeth; unless you have this, failures will surely result. The best method ordinarily is to cut a strip of rubber dam about one-eighth inch wide and place between the teeth.

The next day increase to two and so on until ample space is obtained. When the space is a little wider than the depth of the cavity hold the space a day or two by a small wooden wedge. At the end of this time there will be but very little tenderness of the teeth and you are ready to complete the shaping of the cavity and to get a perfect impression which usually takes about twenty minutes for the impression cement to harden and can then be tilted out of the cavity without fracture.

First wipe the cavity with vaseline to facilitate the removal of the impression cement. After mixing the impression cement powder with water to a creamy consistency fill the cavity, allowing the cement to overlap the edges. Sometimes owing to atmospheric conditions the impression cement does not set as quickly as desired; a little salt may be added to the water, about one-quarter teaspoonful to an ounce which will hasten the hardening. When the cement is hard it can be easily removed and should then be heated to expel all moisture and placed with the convex surface uppermost upon a smooth piece of Chase's impression compound. Surround the cement filling with a metal band and pour into enclosure Chase's fusible metal heated as before described. This impression cement enables the operator to get an impression of difficult cavities which would be impossible with the impression compound.

Often it is advisable after the foil matrix is swaged into the cavity mold to fill the matrix with petro-camphor, pressing it thoroughly into all parts of the foil matrix. Try this into the tooth cavity and give the final burnishing around the edge which will give absolute fit, and with the space provided by the thickness of the shellac in the fusible metal matrix and the corresponding space between inlay and floor of cavity you may be assured if you put pressure enough upon the inlay while adjusting to expel the excess of the cement and keep the pressure up by a soft wood wedge between the inlay and the opposite tooth until the cement crystallizes, the result of this system will be very satisfactory.

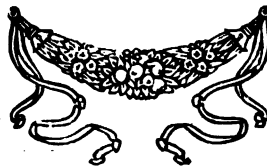
The preparation for gold inlay work requires the same thoroughness and the fusible metal matrix should be obtained the same way as for porcelain inlays. After securing a perfect metal or matrix mold the foil matrix can be shaped into this and may be filled with solder. I however prefer to make a gold filling directly into the fusible matrix. This may be easily and quickly done by imbedding the metal matrix in a little plaster of Paris either on the bench or something that will make a firm foundation, or fasten to the bench vise, then proceed to fill with gold, or dismiss your



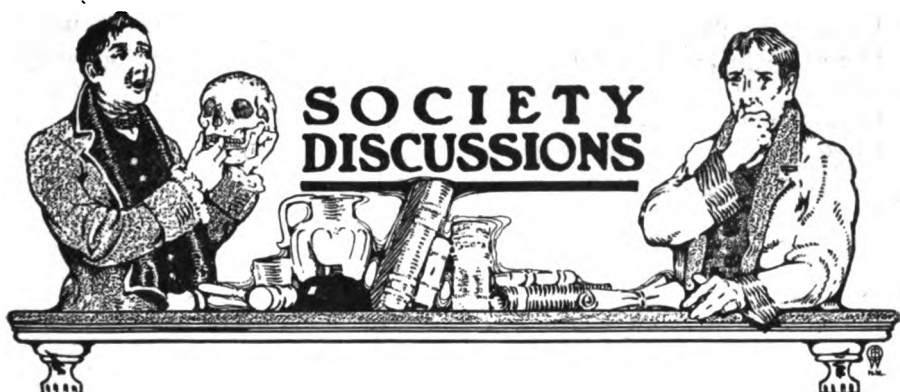
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patient and make the filling at your leisure. Cylinders, ropes, or fiber gold can be used for making inlays, holding it with an instrument until you get it well anchored, or if the shape of the cavity is favorable retaining pits can be made at the bottom of the cavity. Burnish thoroughly and partly finish the filling in the matrix. To remove the filling, hold the matrix over a spirit lamp and as soon as the alloy melts a little from the edge of the inlay, give the matrix a quick jerk and the filling will come out clean and a perfect inlay to the tooth cavity.

In building up a bicuspid or molar tooth after the cavity is prepared, mold a little wax into the cavity, and ask your patient to close the mouth. This will give the articulation of the opposite tooth; this placed into the matrix and arranged on an articulator will enable you to complete the occluding surface without any subsequent grinding when placed in the tooth-cavity. Make slight undercuts with a wheel burr at the sides of cavity, also some little depressions in the base of the inlay. If retaining points were made in the matrix, these gold points should be trimmed off. Use any good cement mixed to a creamy consistency. Before the final adjustment of the inlay, try it in the cavity and see if it fits perfectly at the edges, if it does not, a perfect fit can be secured by holding the filling with an instrument and burnishing it to the edge of the cavity. Fill the cavity with the cement and force the inlay into place holding it firmly a few minutes and then coat the edges with sandarach varnish. After a short time it can be finished up or left for a subsequent sitting.







### **Central Dental Association of Northern New Jersey.**

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A regular monthly meeting of the Central Dental Association of Northern New Jersey was held at the Cafe De Jianne, Newark, N. J., on Monday, October 15, 1906. In the absence of the President, Vice-President Marshall called the meeting to order.

The secretary read the minutes of the last meeting which were approved as read.

The Vice-President then introduced Dr. Harold S. Vaughan, Assistant Surgeon Metropolitan Throat Hospital, New York City, who presented a paper entitled "The Anesthetization of the Dental Pulp by Nerve Blocking and Pericemental Injection."

#### **Discussion of Dr. Vaughan's Paper.**

You have heard the evidence the essayist has presented to you regarding this method of anesthetizing teeth, and although it does not appear conclusively that it will suffice to overcome the pain accompanying such operations, yet it may, in many ways, lead us to investigations by which we may obtain results that will be more satisfactory than the methods we have heretofore used such as cataphoresis and many other things that have cost us much money and a great deal of time, and have been almost universally discarded.

Dr. Kjennerud, of Norway, when he called on me said that he had universal success, and did not know what it was to fail in anesthetizing teeth by his method. He claimed that the local anesthetic which he used was discovered by himself; but he would not divulge the formula



## ITEMS OF INTEREST

nor give me any of the anesthetic. He wanted to sell the right to use it in this country. I told him that would not be practical here although he might do so abroad, so he left with his preparation. I induced him to give some demonstrations, and, as Dr. Vaughan has stated, he made one demonstration in my office, and one in Dr. Vaughan's, both of which were absolutely successful, while two that he made in Dr. Starr's office were not quite so successful; but he claimed that was due to the fact that he would not divulge a certain secret method in the technique because it was largely through such method that he obtained success. From that I drew the conclusion that the manner in which he introduced the anesthetic was as important as the solution which he used. In Dr. Starr's office he tried to anesthetize a lower second bicuspid. The patient was very nervous and timid and a very unsatisfactory patient, and, as you all know, the bone surrounding the alveolus in the lower jaw is thicker and denser than in the upper jaw. Dr. Kjennerud did not appear to be able to force the needle deep enough to reach the periosteum—far enough down on the root to drive the local anesthetic to the nerve supply entering the apex. By careful conversation with him I was able to learn that in these cases he would at home use a very fine spear-shaped instrument, first anesthetizing the mucous membrane slightly in order to pierce a place for his needle to enter through the firm hard external plate of the alveolar process, or he would use a very fine bur and go through this plate, and then inject the anesthetic. The operations, as he made them in my office and as I saw them, on the lower teeth, seemed to require a great deal of pressure and, due to this pressure upon the jaw, there was considerable danger of breaking the needle; in fact he broke two needles, and he told me that it was very difficult for him to obtain needles that were strong enough. In the cases that Dr. Vaughan spoke of where the upper teeth were obtunded the result was almost instantaneous, and in emergency cases where pulp is to be extirpated I am sure the method would be a most valuable one. But it must be carefully examined into so as to obtain a knowledge of the best way of making the application quickly and without too much pressure.

Dr. Vaughan states that he tried his method on various teeth, but did not give us his percentage of success, and I should like to know which teeth are most difficult to anesthetize, and I should also like him to state how he reaches the mental foramen. Of course we can learn that by studying the anatomy, but Dr. Vaughan has already looked the matter up.

Dr. Kjennerud told me that by injecting anterior to the second superior bicuspid all the teeth anterior to this tooth to be treated would be



## SOCIETY DISCUSSIONS

anesthetized so that pulps might be removed or cavities excavated without pain in all that region.

We see many advertisements of nostrums for which the manufacturers claim wonderful efficiency. I think Dr. Vaughan has settled that point in this matter. He has tried the various solutions and found them far less efficient in anesthetic qualities than a cocaine solution freshly and carefully prepared.

That is all I can say on this subject, but I trust that some of you may be able to tell us how we may obtain the best made and strongest hypodermic needles. The great difficulty with them is that in passing them through the bone they are apt to break and the little hole in the point is apt to clog when it passes through the alveolar plate. I think that could be obviated by having the syringe opening very small, and instead of having the needles set as they are now in the holder, that is screwed on to the syringe, we might get a syringe that tapers and ends in a very sharp point so as to prevent the needle from breaking at the point of insertion into the holder. Perhaps some of you may know of such, but I have not been able to find them.

I have no doubt that the process as described by  
**Dr. Luckey.** Dr. Vaughan, carefully carried out, would result in success. But I do not see the necessity for it; I do not see any reason why we should anesthetize so large an area to produce so small a result—to get at the pulp of a single tooth. We are not in the habit of extracting the pulps of numerous teeth adjacent to one another at one time. For the purpose of tooth extraction I should think the method might be admirable. It has been practised for a long time with perhaps a difference in the solutions that have been used, cocaine being, of course, the active principle in all of them. But for the anesthetization of a pulp and its painless removal it is not necessary to touch any other tooth but the one operated on, and it can be done with absolute certainty and perfect success in almost every case, by pressure anesthesia. The only cases that I know of which prevent immediate success are those where the pulp contains nodules, pulp stones, which will frequently interrupt the process of anesthetization; whether the tooth has been decayed or whether it is absolutely perfect practically makes no difference. It is of course easier, where there is a large cavity and the pulp is almost exposed, to carry out the process of anesthetization, but the drugs involved in the methods are practically the same as those used in the processes described by Dr. Vaughan, the sole difference being that one is applied with, and the other without, the hypodermic needle.

It has been my pleasure as well, I may say, as the pleasure of many



## ITEMS OF INTEREST

of my patients, for me to remove many large and actively vital pulps with practically no pain whatever by the use of adrenalin and cocaine.

A little while ago Dr. Shields described before this society his method, which is practically the method followed by most of the gentlemen in this room, and it does seem to me that it makes absolutely unnecessary a process of this kind, of plunging needles into the gum tissue or the pericemental tissues at all. Not that I wish to discourage the essayist. What we are after are the best methods to obtain certain results; those we need and those we must have for our own benefit and the benefit of our patients. But this obtaining of the result by a roundabout method in these later days is unwarranted, it is unnecessary—perhaps that is a better word to use.

**Dr. Adelberg.** From the discussion I judge the paper is misunderstood; the gentleman discussing the paper seems to think that the anesthetization is solely for the extirpation of pulps, while as I understand the paper it is proposed to anesthetize the pulp not only for extirpation but for painless excavation. We are all looking for that, and if anything can be done which will lead to more perfect methods in that respect it will be of very great benefit to the profession.

**Dr. Fossum.** There must have been a slight misunderstanding, I think, although the discussion, as far as I understand Dr. Luckey, is a very satisfactory one because it brings out many points that were not brought out before.

I feel that much temporary work is being done on teeth in the filling of cavities because they are sensitive, and the patient can not endure proper excavation for the placing of a solid permanent filling. Dr. Adelberg hit the nail on the head. When a cavity presents to be filled where the decay necessitates considerable cutting, especially where the enamel margins are involved to such an extent that there must be considerable extension, it is very difficult to obtund such dentine which is inflamed, hyper-sensitive. I am sure there is not a man in this room who will disagree with me on this point. It is in these cavities where the pressure anesthesia will not suffice that injections are so useful. The two cases I saw in Dr. Starr's office were of the most difficult that you have to deal with, where metal fillings could not be placed, where the anesthesia was not complete; although the cavities were entirely excavated, they could not be touched at first.

**Dr. Richards.** In inserting this needle, which I understand is a longer one than we usually use at such a distance, is there not more or less soreness for several days



## SOCIETY DISCUSSIONS

afterwards, more than there would be from using a small needle; are there not some bad results ensuing from injection in the apex of the root?

Dr. Fossume spoke of the danger of breaking the  
**Dr. Vaughan.** needle. I have found it necessary to exert a great deal of pressure and to have the beveled point of the needle directed against the root. If the needle breaks it is always at the point of insertion into the shank and is easily withdrawn.

As to Dr. Richard's question I did at first use long needles, but I was unable to insert a long needle far enough—that is any further than a short one; I could only insert it possibly for one-quarter or three-eighths of an inch so that short needles are just as good as long ones. You can not pass the needle up to the apex by any means; so I have used the ordinary ones.

Dr. Fossume asked as to the percentage of failures. Out of thirty cases I have had two failures. I might have succeeded perhaps in those two cases had I persisted, but I used the usual quantity that I had been using and got no result. One of them was a right upper first molar; I considered that a failure although I did anesthetize it enough to insert a needle into the exposed pulp and inject, and in that way finish it, but it was not a success. My other failure was a central incisor; in that case I must have used 15 or 20 minims, but was not able to force it to the apex.

Dr. Luckey has spoken of his wonderful success with pressure anesthesia; although I have had a good deal of success with that method, still I think I have had more failures, and I have tried to carry it out as carefully as I knew how.

It so happened that the molar and central incisor that I have spoken of were hard to anesthetize; still I do not think that would usually be the case, for I consider the multi-rooted teeth as the hardest. In the case of an upper molar you must inject into both the buccal and the palatal surfaces, and that makes it a little more difficult. I have found third molars comparatively easy to anesthetize.

As to injecting at the bicuspid and anesthetizing all of the teeth anterior thereto, that has been contrary to my experience; I have found that it has only anesthetized the pulp of the tooth which I injected, and not the adjacent teeth, and the anesthetization of the surrounding gum would depend largely on whether the needle was well inserted into the pericementum or whether a part of the solution was injected into the gum. Of course in the latter case it would spread and anesthetize the gum over a greater or lesser area, but in general the anesthesia was chiefly confined to the teeth injected.

As to the length of time the solution will keep I have not found it necessary to prepare a fresh solution for every operation; I have kept



## ITEMS OF INTEREST

solutions as long as three or four weeks and apparently the last part was as good as the first.

I think Dr. Fossum's suggestion of a tapering point a very good one. In some cases, while the needle would not break it would give way at the point where inserted into the shank, and that is largely because the majority of them are merely stuck into the ends without going in to any great depth.

The method has been spoken of as a roundabout way, but I do not think it is. In the pericemental injection you simply catch the nerve as it enters the foramen instead of taking it at the other end, and my experience is that you can do so easily and in less time than you can make the pressure anesthesia.

As to the after effects of two or three days' suffering I have not found such to be the case. Of course if you insert a needle in the gum there will be a local point of soreness, but I have had no soreness other than practically that of a pin prick or a little sensitiveness as of the tooth on biting; but you find that after the pulp is removed it is due to the strangulation of the vessels at the end of the root and the local irritation resulting. There has been no sloughing at all. Often emergency cases come in where patients are suffering a great deal and it is necessary to devitalize the pulp. I have then found this a very excellent method to use and far better than the sealing in of arsenic because the pain is relieved immediately and the cause removed.

To reach the mental foramen, insert the needle at the gingival buccal angle just anterior to the root of the lower second bicuspid; the point is then directed downward to reach the bone just in front of the apex of this root, where it will enter the foramen.

As to its value in hyper-sensitive cavities I have found it very valuable in such instances. Of course it is not worth while to use this method for ordinary simple cavities, but it will really help you out very much in severe cases.

On motion, a vote of thanks was extended to Dr. Vaughan for his very excellent paper.

On motion adjourned.





In the department of Orthodontia, in this issue, will be found a paper, and a discussion thereof, which should interest every dental practitioner, whether engaged in the correction of irregularities or not. This for two reasons.

**Orthodontia  
a Prophylactic  
Measure.**

In the first place it is here pointed out that the work of the orthodontist must, from this time on, assume a new meaning. Heretofore, except within very recent years, the regulation of teeth has been mainly a cosmetic venture; hereafter it must be counted as a prophylactic procedure. Upon the restoration and maintenance of misplaced teeth into true occlusal relations depends the ability of the individual to properly perform the function of mastication, and there can be little doubt that the sequellæ of improper mastication include nearly all the ills to which man is subject. Real vital energy is secured only through proper nourishment, and lacking this there must follow a lessened vital resistance to disease germs and other causes of ill health. Moreover, the malrelation of teeth is a preventive of perfect oral



## ITEMS OF INTEREST

cleanliness, and with improper hygiene of the mouth the teeth must become more subject to caries.

**The Question of Commissions.** The second point in the paper, which is of common interest to both specialist and general practitioner, is the suggestion in regard to the giving and receiving of commissions, in return for the recommendation of patients. The whole subject was most thoroughly discussed; much more so than will appear in the printed report of the meeting. Many orthodontists present related experiences so mortifying that a unanimous antipathy to the whole commission proposition was engendered, resulting in the prompt adoption of the proposed resolution forbidding members to engage in the practice of sharing fees unknown to the patient. But these experiences were many of them given in such detail that they assumed a personal aspect which made it seem wiser to eliminate that part of the discussion prior to publication, rather than cause unpleasant comment upon practitioners who might easily be recognized because of the localities of the specialists narrating the stories. This is mentioned here, however, to silence the comment that such a resolution was needless, and that men might be trusted to arrange their own business relations. The truth is that men can not be trusted in this regard; that is, some men can not be trusted.

Dr. Charles Ash, the President of the Second District Dental Society, was present and indorsed the movement. Later he had a similar resolution introduced in the Second District Society, and after due course this was unanimously adopted as an appendix to the code of ethics. Thus a specialist society has forbidden the giving of commissions, and a purely dental organization has forbidden the acceptance of commissions.

One clause of the resolution declares that there shall be no division of fees, but that where a specialist and a general practitioner share the work, each must render his own separate bill. This was added to prevent evasion of the spirit of the resolution, the commission being paid in the form of a "share" of the fee, said share to be accounted for by erecting some imaginary responsibility.

But it never was intended by the framers of the resolution that there should be any interference with the legitimate management of the business of a dentist or of an orthodontist. Thus a general practitioner, who

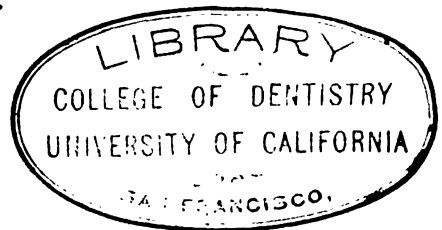




chooses to retain control of his own patients, and to assume responsibility for and real supervision over the work, is surely entitled to engage the services of an orthodontist, just as he would an anesthetist, or a surgeon, rendering his own bill to his own patient, and settling with the orthodontist, anesthetist, tooth extractor, rhinologist, surgeon, or any other specialist, the whole point at issue being that the patient must thoroughly understand the relation of himself to each of the attendants.

But where, for example, a dentist in a suburb feels unwilling to assume full care and responsibility in the management of an orthodontia case, and arranges for the aid of an orthodontist who shall supervise the work and care for the patient at definite intervals, while the practitioner likewise cares for the patient between the visits to the orthodontist, there certainly should be separate bills, just as there is a division of responsibility. A similar condition in medical practice would be where the general practitioner advises a patient to secure surgical aid at a hospital, himself taking part in the after treatment. Here it is both customary and proper for the surgeon and the family doctor to render independent bills.

In simpler language, if the patient knows that he is paying two persons, and why, there can be no ethical breach. It is the secret business arrangement which is abhorrent and intolerable.







### **Dr. C. R. Taylor.**

#### **Illinois State Board of Dental Examiners Memorial Resolutions.**

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Whereas, on roll-call at the opening session of the November, 1906, meeting of the Illinois State Board of Dental Examiners, the name of Charles R. Taylor receiving no answering response, makes us pause to pay tribute to his worth and memory. Little did we think at our last parting that at our next meeting our long-time friend and co-laborer, strong in all the elements that constitute a lovable man, would be beyond the reach of voice, and his chair stand vacant at our table—reminding us that the strongest ties of friendship must sooner or later be broken, but not forgotten. In token of our affection and appreciation of Doctor Taylor's influence in private and public life for the betterment of all who had the good fortune to know him, it is

Resolved, That a page of our Records be set apart, and the sentiments herein expressed be inscribed thereon.

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### **Dr. Francis David Nellis.**

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Francis David Nellis, M.D.S., was born in the town of Seward, Schoharie County, N. Y., October 1, 1835, of Dutch ancestry. His father, Joseph Nellis, served in the war, and his mother, Dany Dewey, was a relative of Admiral Dewey.

He began the study of dentistry in the office of his brother, Jacob Nellis, M.D., D.D.S., in Schoharie County, and practiced in Schoharie, Delaware, and Otsego Counties before coming to Syracuse in 1866, where he was engaged in active work till October 6, 1906.

In early life he married Eva Eliza Gardiner, of Schoharie County, who died August 13, 1883. He was a member of the Masonic Fraternity, Syracuse Lodge, 501 F. A. M., the Masonic Veterans of Central New York, and the Citizens' Club. After an illness of six weeks, he died at his home, at midnight, November 19, of heart failure, leaving two children,





Franklin Dewey Nellis, of Auburn, and Mrs. Louie Fritcher of Syracuse, and three grandchildren, Eva Liza Nellis, Theodore and Joseph Nellis Fritcher.

Dr. Nellis was a contemporary of Westcott, Palmer, Smith, and Barnes, a pioneer in the history of the New York State Dental Society, the Fifth District and the Syracuse Dental Society, and a loved and honored worker in the front rank till the last. A banquet was given in his honor by the Syracuse Dental Society upon the completion of his fiftieth year of dental practice.

He was conservative, steadfast, consistent, and these qualities, combined with a devotion to the best interests of his chosen profession, made him a source of inspiration to his fellow practitioners, to whom he endeared himself by his genial and friendly nature.

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### **Dr. U. D. Billmeyer.**

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Died, at Asheville, North Carolina, November 24, 1906, in his fifty-second year, Dr. U. D. Billmeyer, of Chattanooga, Tenn.

Dr. Billmeyer was born and spent his youth in Michigan, was graduated from the State Normal School at Ypsilanti in 1876, and from the College of Dental Surgery of the University of Michigan, in 1880. He was chosen assistant to the Professor of Operative Dentistry in his Alma Mater, serving with honor and distinction for two years, resigning to seek a warmer climate in search of health.

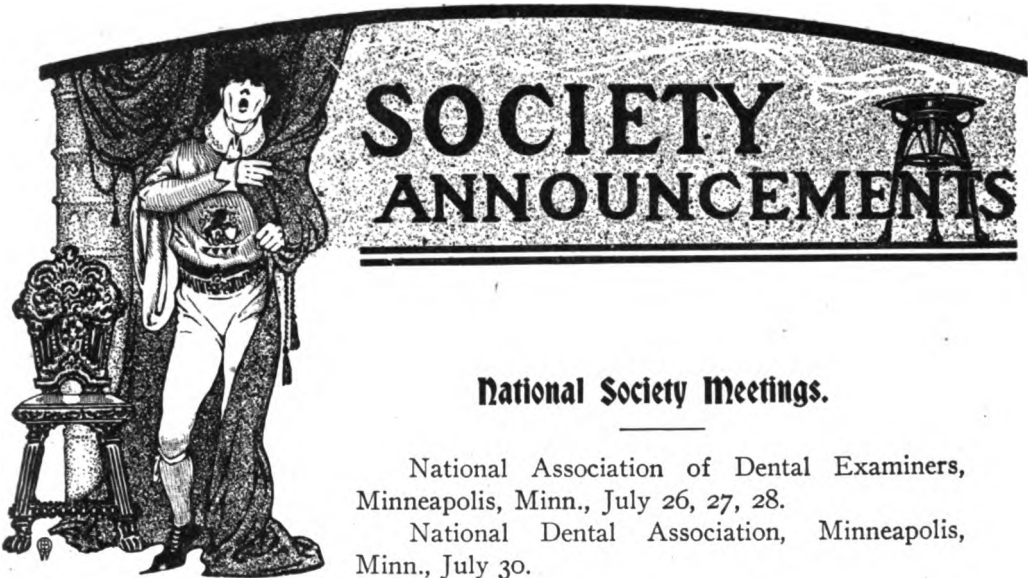
In 1883 Dr. Billmeyer settled permanently in Chattanooga, Tenn., and became prominently identified with the business and social interests of that city. His sterling qualities as a gentleman, scholar and operator soon attracted to him the best and most cultured portion of the community.

Dr. Billmeyer was one of the most skillful operators in the South, and took a leading position in the dental societies. He was elected President of the Tennessee State Dental Society in 1897, and in 1901 was tendered and accepted the chair of Professor of Operative Dentistry in Vanderbilt University, which position he was compelled to resign two years later because of poor health. Never robust, and fighting from youth that scourge of the human family, tuberculosis, he finally, in 1904, gave up practice and devoted his time to a vain search for health. Dr. Billmeyer loved his profession and worked always by precept and example to raise it to a higher plane. He was a Knights Templar and a Shriner.

The world has lost a valuable citizen, and the dental profession one of its most brilliant and honorable members.

R. M. P.





### **National Society Meetings.**

National Association of Dental Examiners,  
Minneapolis, Minn., July 26, 27, 28.

National Dental Association, Minneapolis,  
Minn., July 30.

### **State Society Meetings.**

- Alabama Dental Association, Birmingham, May 14, 15, 16, 17.
- Arkansas State Dental Association, Eureka Springs, May 29, 30, 31
- Connecticut State Dental Association, New London, April 16, 17.
- Florida State Dental Society, Atlantic Beach, June 6, 7, 8.
- Georgia State Dental Society, Atlanta, May 7, 8, 9, 10.
- Illinois State Dental Society, Quincy, May 14, 15, 16, 17.
- Kentucky State Dental Association, Louisville, May 20, 21, 22.
- Maine Dental Society, July 16.
- Minnesota State Dental Association, Minneapolis, July 30, Aug. 3.
- Montana State Dental Society, Helena, April 12, 13.
- Nebraska State Dental Society, Lincoln, May 21, 22, 23.
- New Jersey State Dental Society, Asbury Park, July 17, 18, 19.
- New York State Dental Society, Albany, May 10, 11.
- Oregon State Dental Association, Portland, May 9, 10, 11.
- South Carolina State Dental Association, Anderson.
- Vermont State Dental Society, Burlington, May 15.
- Virginia State Dental Association, Jamestown, Sept. 10, 11, 12.
- Wisconsin State Dental Society, La Crosse, July 16, 17, 18.





### **Minnesota State Board of Dental Examiners.**

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The Minnesota State Board of Dental Examiners will hold its next regular meeting at Minneapolis, in the Medical Building of the State University, on April 2, 3, and 4, 1907.

All applications must be in the secretary's hands by 11 o'clock of April 2. Candidates will be furnished all necessary blanks and such other information as is necessary upon application to

GEO. S. TODD, D.M.D., Secretary,

Lake City, Minn.

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### **California Board of Dental Examiners.**

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At the last examination held in December by the Board of Dental Examiners of California, there were forty-seven applicants of whom twenty-four were successful and were granted licenses. The next examination will be held in Los Angeles, beginning on the second Monday in June. This will be followed by an examination in San Francisco, beginning on the third Monday in June. Officers were elected for the ensuing year as follows: President, Dr. Garrett Newkirk, Pasadena; secretary, Dr. C. A. Herrick, Jackson; and treasurer, Dr. Joseph Loran Pease, Oakland.

C. A. HERRICK,

Secretary Board of Dental Examiners.

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### **Odontotechnique Society of New Jersey.**

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The Odontotechnique Society of New Jersey will hold its next regular meeting on Saturday, March 2, 1907, at Achtel Stetter's, Newark; the paper of the evening will be read by Dr. Corwin of Newark, subject "Adenoids."

Plans are now on foot for a clinic to be held on the afternoon of the April meeting date, which has been changed to the date of Wednesday, April 3, to be followed by a banquet in the evening at which a paper will be read by Dr. Ellison Hillyer of Brooklyn, subject "The Progress—Past and Present—of Prosthetic Dentistry." This will be an important event, and one of profit to the profession. A large attendance is expected.





### **National Association of Dental Examiners.**

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The National Association of Dental Examiners will hold their Twenty-fifth Annual Meeting in Minneapolis, Minn., beginning Friday, July 26, and continue through the 27th and 29th.

Accommodations have been secured at the leading hotel of Minneapolis, "The West Hotel." Rates as follows: Room without bath \$1.00 per day for each person occupying the room. Room with bath, \$2.00 per day for one person and \$1.50 per day for each additional person in room. Hotel on European plan. Any room in the hotel capable of accommodating two people. Telephone in each room; hot and cold water. A large attendance of delegates is earnestly requested. Committee on Colleges, Joint Conference Committee, Tabulation of Examining Boards reports, the Committee for promoting a system of credits and uniformity of Examinations will all give exceedingly interesting reports, valuable to all the members of the Association. Railroad rates will be announced later.

For information apply to Charles A. Meeker, D.D.S., secretary and treasurer, 29 Fulton Street, Newark, N. J.

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### **New Jersey State Board of Registration and Examination in Dentistry.**

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The New Jersey State Board of Registration and Examination will holds its Semi-annual Meeting beginning Monday, July 8, 9, 10, and 11, in the Assembly Chamber of the State House at Trenton, N. J.

For information kindly apply to the secretary.

A photograph of the applicant must be filed with the application.

Practical and theoretical work completed at the session.

CHARLES A. MEEKER, D.D.S.,

Secretary of Dental Commission.

29 Fulton Street, Newark, N. J.

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### **Montana State Dental Society.**

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The Montana State Dental Society will hold its next meeting in Helena, April 12 and 13, 1907.

Helena, Montana.

W. E. TRERISE, Secretary.





## **Resolutions Adopted by the American Society of Orthodontists, New York, December 29, 1907.**

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*Resolved*, That in the opinion of the members of the American Society of Orthodontists, the practice of paying a commission, honorarium, or any sort of fee, in consideration for the reference of a patient is both unwarrantable and unprofessional; and be it

*Resolved*, That the payment of any such commission, honorarium, or fee, by any member of this Society, shall be sufficient cause for the expulsion of said member, by vote of the Society after conviction; and further be it

*Resolved*, That in case of co-operation in the care of a patient between a general practitioner and an orthodontist, there shall be no division of fees, but each man shall render a separate bill for his personal services.

FREDERICK S. MCKAY, Secretary.

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## **First French Congress of Stomatology.**

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A congress on stomatology styled the "First French Congress of Stomatology" will take place in Paris from the first to the fifth of August, 1907. The committee of organization is as follows: Honorary presidents, Drs. Galippe and Redier, at Lille; president, Dr. Cruet; vice-presidents, Drs. Claude Martin, of Lyons, and J. Ferrier; general secretary, Dr. Chompret; treasurer, Dr. Gires. The congress will be opened to all French and foreign doctors of medicine who are interested in dental and oral science. Subscriptions and communications should be addressed to the general secretary, Dr. J. Chompret, 182 rue de Rivoli, Paris, France.

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## **Connecticut State Dental Association.**

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The forty-third annual convention of the Connecticut State Dental Association will be held at New London, April 16 and 17, 1907. An excellent meeting is assured.

E. S. ROSENBLUTH, Secretary.

1051 Main St., Bridgeport, Conn.





### **New Jersey State Dental Society.**

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The New Jersey State Dental Society will convene in the Auditorium, Asbury Park, N. J., beginning Wednesday, July 17, and continue 18 and 19.

The exhibitors will please communicate with Dr. Walter Woolsey, Elizabeth, N. J. Clinicians communicate with Dr. Charles H. Dilts, Trenton, N. J. Essayists communicate with Dr. W. A. Jaquette, Salem, N. J.

CHARLES A. MEEKER, Secretary,  
29 Fulton Street, Newark, N. J.

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### **St. Louis Society of Dental Science.**

**Consolidation of the Fraternal Dental Society and the Society of Dental Science of St. Louis.**

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At a joint meeting of the Fraternal Dental Society and the Society of Dental Science of St. Louis, held December 18, 1906, a consolidation of the two societies was effected, the society to be known in the future as the St. Louis Society of Dental Science.

The officers and committees for the ensuing year are: D. O. M. Le Cron, president; Richard Summa, vice-president; Clarence O. Simpson, secretary; W. E. Brown, treasurer. Executive committee, W. L. Whipple, E. E. Haverstick, Herman F. Cassel. Advisory council, George A. Bowman, A. H. Fuller; Adam Flickinger, Wm. Conrad, Burton Lee Thorpe, Edward H. Angle, E. P. Damron.

CLARENCE O. SIMPSON, Secretary.

457 Century Bldg., St. Louis.

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### **American Dental Society of Europe.**

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The American Dental Society of Europe will hold its next annual meeting in Rome, Italy, at Easter, 1907. The exact date is March 29-30, and April 1. A very cordial invitation is extended to members of the profession to be present. As it is the first meeting of the Society in the "Eternal City," it is hoped it may be the most enjoyable one in its history.

J. W. GALE, Hon. Sec'y,  
79 Hohenzollern-Ring, Cologne (Rhine), Germany.





## **A Reply to Dr. J. E. Hinkins's Paper.\***

By DR. E. C. KIRK, Philadelphia, Pa.

### **PART I.**

In the paper by Dr. J. E. Hinkins, in the March number of *ITEMS OF INTEREST*, it appears to me that there are two distinct phases involving points of issue between the views of the essayist and my own. The first phase comprises what I think I may fairly call a bill of grievances or complaints upon the part of the essayist, for what he believes to be an injustice which I have done him in not giving him proper credit for his scientific work in certain instances and attempting to give the credit for that same work to others. The second phase of his paper as I interpret it deals with the question of the value of scientific evidence which I have brought forward in the endeavor to throw some light upon a problem in which both the essayist and myself are particularly interested, and in which the dental profession has been interested practically from the beginning of its history. I shall deal with these two phases of the subject separately, and in the order in which I have stated them.

At the outset I wish to state with all the emphasis which may be possible that if I have in any instance failed to give credit to the essayist

\*A complete reply to Dr. Hinkins is in our hands, but reaches us too late to be published in full. The second part will appear next month.—Ed.



## ITEMS OF INTEREST

for any work which he has done, or if I have, as he seems to think, robbed him of any portion of that credit and endeavored to give it to others, it has been done unintentionally and with absolutely no realization on my part that it had been done.

In this connection let me say that to my mind the question of who is the originator of facts that shed light upon scientific problems has always been of secondary importance to the fact that the light has been produced, for I take it that the purpose of scientific work is to discover the truth, and it would give me just as great pleasure to hail Dr. Hinkins as the discoverer of a new truth in the science of dentistry as it would to hail Dr. Miller in that capacity, or any one else, and I am sincere when I say that it would give me the same pleasure to have Dr. Hinkins make a new discovery in the science of dentistry as it would had I made the discovery myself. I ask him to believe that I should therefore be very loath to deprive him of one iota of any of the honors to which he may justly be entitled.

### **Comments on Hinkins' Previous Papers.**

I learned at St. Louis during the sessions of the Congress that Dr. Hinkins held a grievance against me because I had failed to give him credit for the results of some of his researches, and that he proposed to mention this point in a paper which he was to read before one of the Sections, and I was advised by my informant to be present at that meeting and make an explanation. I subsequently had an interview with Dr. Hinkins, in which interview we talked somewhat of the matter of the action of acids upon the teeth, and I believe that he offered me a copy of his paper to read, and expressed a wish that I should be present to discuss it. I explained to him, however, and to Dr. Miller, who, I think, was present, the practical impossibility of my accepting his invitation owing to the fact that my executive duties at that time were claiming all of my attention, and indeed were so onerous and pressing that many of the things that I should have been glad to do in my official capacity as Secretary of the Congress were left undone, because of the physical impossibility of giving attention to all the matters which were crowded upon me at that time.

I heard no more and knew nothing more of the incident until Dr. Hinkins' paper, and the discussion upon it, came before me in an editorial way when the matter was being prepared for publication in the *Dental Cosmos* and for the official transactions. I then found that Dr. Hinkins had publicly called me to account in his St. Louis Congress paper, because in a paper read by me before the Second District Dental Society of New York in March, 1902, and published in the *ITEMS OF INTEREST* for July of the same year, I did not credit him with work done by him and



reported by him in his Paris Congress paper in 1900. He says (*Trans. IVth International Dental Congress*, page 112): "In a paper by Dr. E. C. Kirk (ITEMS OF INTEREST, July, 1902), the theory is discussed that erosions may be due to the action of lactic acid and the acid phosphates of sodium and calcium upon the tooth structure. We wish to point out that in our paper read in Paris, in 1900, we pointed out the role played by these organic acids in the failure of cements and tooth structure—and in view of this Dr. Kirk's hypothesis is not new; not only this but Dr. Kirk did not make reference to our paper on this subject, and therefore, failed to give us the credit due." (*Dental Cosmos*, vol. xlvii, page 328).

As throwing further light upon the attitude of mind of Dr. Hinkins with regard to this point, I quote from the report of Dr. Hinkins' remarks in closing the discussion upon this paper: "In conclusion, a few words to the beacon lights of our profession. Of these men, most of all, is the highest ethical standard expected. They should be ever willing to lend a helping hand to the young man in his research work, and to recognize, encourage, and refer to the articles which the younger men present to the profession. Unfortunately in the past some of our most prominent men in their papers have not given the proper credit to others for the work which they have done. As a result many young men are discouraged from engaging in research work, feeling that their investigations will not be recognized and given the proper credit and encouragement." (*Dental Cosmos*, March, 1905, page 369.)

There are two reasons why I did not refer in my ITEMS OF INTEREST paper on erosion to the paper by Dr. Hinkins and Dr. Acree, on the disintegration of cement fillings, read before the Third International Dental Congress, held in Paris, in 1900. First, because it did not occur to me after reading Dr. Hinkins' paper that it bore directly on the subject of my ITEMS OF INTEREST paper, already referred to; and, secondly, because of the nature and purpose of my ITEMS OF INTEREST paper itself.

Dr. Hinkins' statement, which I have already quoted, I interpret to mean this, that because of the conclusions reached by him as the result of his researches as reported in his Paris paper of 1900, that certain organic acids are generated in the mouth either through the agency of mouth bacteria or possibly of certain enzymes, and that these organic acids were shown by him to have a solvent action upon cements, and that very likely as he suggests they would also have a solvent action upon tooth structure, then, and therefore, I did him an injustice in not calling attention to these observations in my ITEMS OF INTEREST paper in which I reported some findings in the study which I had made of a case of dental erosion. I am very glad to have Dr. Hinkins' explanation of his



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meaning, but I submit that when he wrote the paragraph I have quoted he places the record of his ideas in such form as to distinctly lay them open to the inference which I drew therefrom. It is, however, a curious fact that although claiming priority for the hypothesis referred to he later proceeds with much pains to demolish it. I at once admit frankly that it did not occur to me from the reading of Dr. Hinkins' paper that his conclusions differed so materially from the conclusions generally held by the dental profession, as to the verity of the fact that organic acids are formed in the mouth by fermentation, and are capable of acting on tooth structure, as to make it necessary to specifically allude to the writings of any author who has attempted to solve that same problem.

### Comments on Miller's Contributions.

It seemed to me that general view had been so well established that it had become common knowledge both in medicine and dentistry, and it was, therefore, under the circumstances, and in view of the character of my report of the erosion case published in the ITEMS OF INTEREST, not necessary to rehearse the evidence bearing on that question.

But Dr. Hinkins takes me to task for endeavoring to defraud him of the credit due him for these researches, and to place the honors for these conclusions to the credit of Dr. Miller. I am surprised that Dr. Hinkins has so completely misunderstood my motive. It is immaterial to me who is credited with this discovery. I had always believed from the time when I first made myself familiar with the researches of Miller on the etiology of dental caries involving the acids of fermentation in the human mouth that he had definitely established the fact that certain bacteria in the presence of carbohydrate food in the oral cavity generated acids by what we know as fermentative processes, that he had determined the chemical nature certainly of one, if not more of these acids of fermentation, and had further determined that decay of the teeth was mainly due to this cycle of activities. Everybody who has studied the subject admits, of course, that other observers had much to do with establishing the fact of the production of acids by fermentation in the mouth, but it has seemed to me that the essential feature of Miller's researches is the discovery of the fact that, in caries of the teeth, the decalcification of the tooth structure was brought about principally by the acids of fermentation produced by bacteria in localized areas of tooth structure, and that the acid mainly responsible for tooth decalcification in caries is lactic acid.

Miller's paper, read at the meeting of the American Dental Society of Europe, held at Ostende in August, 1882, states as its first conclusion: "The first stage of caries of the teeth, i. e., the extraction of the lime salts, is for the most part caused by those acids which are generated in the



mouth by fermentation." (*Dental Cosmos*, vol. xxv, page 11.) His subsequent papers upon fermentation in the human mouth, running through five issues of the *Independent Practitioner* for the year 1884, and much of the text of his work on "Micro-organisms of the Human Mouth" bear so directly upon the establishment of the general proposition that decalcification of the teeth, particularly in caries, is due to the acids produced through the agency of bacteria acting upon carbohydrate food materials in the mouth as to leave no doubt in my mind as to his meaning. In short, it seems to me that, by reason of his works and his published results, he is to be rightfully credited with having established that general fact.

I have never claimed for Dr. Miller, nor has he ever claimed for himself, that he has solved all of the factors that enter into the problem of the etiology of caries of the teeth, nor has he, so far as I am aware, made any claim, nor have I suggested, that he has worked out all of the fermentative processes in the mouth which may produce acid end-products. When I stated in reply to Dr. Hinkins, and this is one of the points which he critically quotes against me as evidence that I have attempted to take from him certain credit and give it to Dr. Miller, that "Miller's researches clearly demonstrate the fact that acids formed at the seat of decay do actually dissolve the calcium phosphate of the tooth structure," I meant no more nor less than I have here tried to explain.

Dr. Hinkins quotes from Dr. Miller certain statements from the German edition of his "Micro-organisms of the Human Mouth" relating to specific fermentations, upon which in general Miller states that the existence of certain specific fermentations in the human mouth are not definitely made out, and he uses these quotations in rebuttal of my statement that "Miller's research showed twenty-five years ago that acids are produced by fermentative processes in the human mouth." Then he says: "Dr. Miller really showed that certain mouth bacteria generate acids in media *outside the mouth*."

I can hardly think it possible that Dr. Hinkins is here quibbling over the accuracy of the findings of Miller because from experiments made with mouth bacteria outside the mouth he deduced that the same fermentations took place inside the mouth. I say I can hardly believe that he would take that position, when, if I have read correctly the record of his experiments as recorded in his paper read before the Paris Congress, he pursued that identical method himself. When I say identical, I mean with respect to the conducting of his experiments *in vitro* instead of *in oro*. If, however, he does raise that point, let me refer him and any other doubter on that point to Miller's article, "Fermentation in the Human Mouth; Its Relation to Caries of the Teeth" (*Independent Prac-*



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*titioner*, 1884, vol. v, page 60), where Miller seems to have anticipated just that type of criticism and says:

"Experiment One: Fresh saliva is mixed with sugar or starch, one to forty, and kept at blood temperature. It invariably becomes acid in four to five hours. But some one no doubt will say that this is a result of no consequence because the experiment was not made within the oral cavity; for his personal benefit we give the following:

"Experiment Two: A glass tube, two cm. long, and three mm. wide, is filled with starch, sterilized and fastened to a molar tooth in the mouth on going to bed; next morning the contents of the tube will have a strong acid reaction. A cavity in a tooth or a piece of linen which may be saturated with a solution of starch will answer the purpose as well as the glass tube. That the acid is the same in each case, will be further established below." As is well known the report of his further study of the matter showed the acid referred to to be lactic acid.

I understand Dr. Hinkins to claim that in his Paris paper he showed that which Miller had not already shown, namely, that other acids besides lactic acid were formed by fermentation through the agency of mouth bacteria, and demonstrated not only the existence but the strength of the acid solutions produced by these specific mouth bacteria and showed their solvent action upon tooth structure. I have no issue with Dr. Hinkins on this point whatsoever, nor do I think he has any issue with me thereon. I merely stated, as I have already noted, that the general fact of the causation of oral acidity by the action of ferment germs had been demonstrated by Dr. Miller, and in that I think I am correct, and I am of the opinion that that is the generally accepted belief among members of the dental profession. If I am wrong in that belief I am quite willing to be shown that I am wrong, for I shall at least be wrong in good respectable company. It seems to me that Dr. Miller himself holds to the opinion which I have just stated, for I find at the beginning of his fourth paper in the series on fermentation in the human mouth at page 281, vol. v, June, 1884, of the *Independent Practitioner*, this statement as expressing the general conclusions which he has reached at that time: "Having established upon an experimental and scientific basis the fact that caries of the teeth is to a certain extent the direct result of the action of ferment acid or acids upon the tissue of the tooth followed, particularly in the case of the dentin, by the action of the ferment micro-organisms themselves upon the decalcified tissue, it becomes a matter of first importance to determine, first, by what means we may counteract the action of the acids or prevent their production; second, by what means we may save the decalcified tissue from complete destruction," and in a footnote appended to this paragraph at the bottom of the page Dr. Miller says: "The chief work



in the production of caries is performed by lactic acid ; other acids are only auxilliary factors."

It seems to me then that the issue on this point is really between Dr. Hinkins and Dr. Miller, rather than between Dr. Hinkins and myself, for I feel that what Dr. Miller himself has published on this question is a sufficient justification for my statement that Miller had established the general fact and character of fermentation in the human mouth in so far as it is related to caries, and I see no justification in the position taken by Dr. Hinkins that in expressing my belief that what Miller has said is true, I have robbed him of the credit due to him and endeavored to credit it to Miller.

**Dr. Miller's Test for  
Lactic Acid in  
Caries.**

Dr. Hinkins takes issue with me for the statement made by me that Dr. Miller showed that acids formed at the seat of decay did actually dissolve the calcium phosphate of the tooth structure. For authority for that statement I refer him to page 118 of the *Independent Practitioner*, March, 1884. "I have been able with some degree of certainty to establish the presence of lactic acid in carious dentin by a method theoretically so simple that it seems strange that it has never been made use of before, but which, however, in practice is only carried out with great difficulty. My first and second attempts were only partially successful; the third succeeded sufficiently well to justify its description here.

"In this experiment I made use of fifteen teeth, all containing considerable quantities of carious dentin, and all extracted on the day of use. The remains of food were first removed from the cavities, but none of the softened dentin; then all the softened dentin was taken out and placed in a porcelain vessel, cut or picked into fine pieces, placed in a test tube with one cc. of water and two drops of a ten per cent. solution of hydrochloric acid added. Any free lactic acid in the carious dentin would remain free, and any existing in combination with lime would be set free by the hydrochloric acid. It was then gently shaken with about 25 cc. sulfuric ether, and the latter holding the lactic acid in solution was, after some minutes, poured off into a second test tube; here it must be allowed to stand from twenty-four to forty-eight hours till it becomes practically clear. It was then filtered into a porcelain dish, evaporated, a few drops of distilled water and a small quantity of *freshly prepared* zinc oxid added, gently boiled (water being added as necessary) for ten minutes, the three or four drops of liquid remaining filtered on to a glass slide, and allowed to crystalize. I obtained the forms seen in figure two. Their close resemblance to the crystals of the lactate of zinc will be seen at once. There can, in fact, scarcely be a doubt that they are lactate



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of zinc crystals. The lactic acid concerned in their formation must, of course, have existed in the carious dentin."

### **Comments by Hinkins on Miller's Work.**

Dr. Hinkins puts in evidence certain analyses of carious teeth and sound teeth reported by Miller in his book in which it had been shown that the loss of calcium phosphate occurred in the carious portion of the teeth analyzed, and says concerning this work, "but this by no means proves that the acids or the acids alone were the solvents; there are other products of fermentation present, such as ptomains, organic nitrogenized bases from the proteid contents of the teeth, etc., and the possibility of solution by these was not excluded." He also states that "there are other things besides acids that dissolve calcium phosphate, namely, bases and salts," and reports the findings of Young and Hurst "that neutral salts, like the chlorides and nitrates of potassium and sodium which occur in all salivas, dissolve calcium phosphate with the simultaneous formation of acid." He asks: "Did Dr. Miller's experiments then prove that the bacteria generated the acids in the mouth and that these then dissolve the teeth, or do his experiments prove that bacteria are able to draw potassium chloride around them in unusually large amount, and that this potassium chloride dissolves the tooth at the same time giving rise to the acid?" And he replies to his own question by saying: "I submit that Dr. Miller's experience did not decide between these two possibilities."

### **Dr. Kirk's Views.**

As to these points which I have quoted involving others raised by Dr. Hinkins I have to say that in my reading of Miller's work I am unable to find anywhere the claim made by him that he has completely solved the whole problem of the etiology of dental caries. On the other hand I find a number of specific instances where he clearly states that there are yet many factors in this complex problem unsolved, and I think that as to that we are all in agreement. Nor can I see that all of this contention made by the author to prove, as I understand it, that Miller has not completely solved the problem of dental caries or to show that I have literally or unintentionally credited him with that honor is germane to the question originally raised by him, namely, that I have endeavored to take from him credit that belongs to him and give it to Miller.

As to the action of neutral salts, for example potassium and sodium chloride upon calcium phosphate, let us always remember that calcium phosphate is one thing and tooth structure is another, notwithstanding the fact that calcium phosphate is the principle inorganic constituent of tooth structure. I am in complete sympathy with the efforts of Dr. Hinkins to



work out the action of these solvents occurring in the mouth upon the tooth structure, but I very gravely doubt, even though it may be shown that neutral salts can dissolve calcium phosphate as such, that these same neutral salts can dissolve that compound as it is combined in the structure of the tooth.

I have in my possession a number of teeth of the lower animals that I have kept preserved in a strong solution of sodium chloride for between four and five years. I have recently examined a considerable number of these specimens, and the enamel surfaces appear to me to retain their normal luster and appearance perfectly, and to show absolutely no evidence of chemical action from the unusually large quantity of sodium chlorid with which they have been kept in contact for the time mentioned.

Dr. Hinkins may urge that this is an observation made outside of the mouth, and is of no value. He raised the point in his paper read before the St. Louis Congress, and in reference to that Dr. Miller said in discussion: "Dr. Hinkins offers us a theory to the effect that the physiological secretions of the body are in a condition to destroy the structures of that body. As has already been pointed out by Birgfield, this does not seem to me to be a logical conclusion. It would be surprising to me if nature had done so bad a job as to make herself destructive of her own body substance. It would be as though we held that the pepsin of the gastric juice destroyed the mucous lining of the stomach, etc. It seems to me that in the process of evolution a thing of this kind would have been done away with long ago."

In the present status of our understanding of biological processes and of vital chemistry I can not help feeling that the answer made by Dr. Miller to this question is amply sufficient. Dr. Hinkins has certainly not produced any direct evidence to show that his suggestion is entitled to any more serious consideration than may be given to any suggestive hypothesis.

**Etiology of  
Erosion.**

Up to this point, Dr. Hinkins, as I understand him, has been discussing the relation of oral fermentation processes mainly from the standpoint of their connection with the etiology of dental caries, and he next takes up the question from the standpoint of the relation of these same processes, generally speaking, to the question of the etiology of that condition which we have come to call erosion of the teeth.

Dr. Hinkins says in his paper: "Dr. Miller did not mention in his article that he took the pure organic acids, free from bacteria, and treated



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teeth or cements with them to test their solubility. Furthermore, let us see what Dr. Miller said in St. Louis in discussing my paper on erosion."

In the paragraph which I have just quoted it seems to me that we have the evidences of certain misconceptions which are fundamental in their bearings upon one of the main questions at issue between Dr. Hinkins and myself. In the first place I am not aware that he read a paper on erosion at the St. Louis Congress. The paper which he did read, and which he evidently alludes to here, was a paper entitled "The Solvent Action of Saliva on Cements." The bearing which the report of this research by Dr. Hinkins had upon the question of erosion was scarcely more than alluded to. Secondly, I never said anywhere, nor have I ever said anything which was intended to imply that I thought that Dr. Miller "deserves the credit for proving that these organic acids dissolve the calcium phosphate in erosion." The thing that I did say, and from which Dr. Hinkins draws the inference as to erosion, is as follows: "I am quite familiar with the contents of Dr. Hinkins' paper read in Paris, in 1900, and have recently re-read it with care, and I am unable to see what bearing the paper has upon the question of dental erosion other than the fact that he has by his researches shown that cements are soluble in the acids produced in the human mouth as the result of fermentation set up by certain classes of micro-organisms. I take it for granted that the facts which Dr. Hinkins' researches tended to prove are generally accepted by all who have given any attention to the question, especially as this general fact was also clearly demonstrated by the researches of Miller nearly twenty-five years ago in his study of dental caries." (*Dental Cosmos*, vol. xlvii, page 338.)

I hope I have been able to make my meaning clear. The general fact of fermentation in the human mouth producing acid end-products is the thing to which I have referred as having been demonstrated by Miller in his work nearly a quarter of a century ago in relation to the problem of etiology of dental caries. I have not said that Miller claimed credit for showing that this same fermentative process, or these same fermentative processes, produced the acids which caused erosion. I have not credited him with that discovery, nor have I attempted to take from Dr. Hinkins the credit for any part of that discovery, if it is a discovery, which may justly belong to him. I do not consider the mere suggestion which Dr. Hinkins makes in his paper read before the French Congress, in 1900, that the organic acids which he isolated in his experiments dissolved tooth structure, calcium phosphate, zinc phosphate, etc., as of sufficient magnitude in or of itself, nor can I see that it contains sufficient elements of novelty to entitle him to the credit for solving the etiology of erosion. I do not know that he makes such a claim, but it



does seem to me that he regards his suggestion in that direction as recorded in his paper on that subject somewhat in the light of filing a caveat, or a claim for priority in the solution of the erosion question. In saying this, I am merely expressing the impression which the reading of his paper makes upon my own mind. I do above all wish to do him justice in any inference that I may draw, and I confess to my inability to clearly understand from his latest paper, or from some of his other writings on the subject, just what claim it is he does make if it is not the one I have here indicated.

I am charged by the essayist as having prejudice, because I have publicly stated my belief that in its relation to dental caries the work of Miller did establish the general fact of the production of acids in the mouth by fermentation, and I am charged in his summing up of this phase of his essay with crediting Miller alone for these researches relating to bacterial fermentation in the mouth.

It is always, or nearly always, possible to read a sentence in more than one way. I trust that such explanation as I have here given will make it clear that my meaning is not that which Dr. Hinkins has drawn from my statement in so far as it bears upon the part which I believe the researches of Miller have played in this matter.

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## **The Principles and Practice of Filling Teeth with Porcelain.\***

By DR. JOHN Q. BYRAM, Indianapolis, Ind.

In endeavoring to present "The Principles of Filling Teeth with Porcelain," the author realizes that many methods of performing operations are transient. The desire to give to our patients the best at our command necessitates changes, so the practice of to-day may be improved to-morrow. Operations are dependent, in a measure, upon the individuality of the operator, and that method which may be most successful with one dentist may be inadequate with others.

Before proceeding further, the author wishes to acknowledge the work of all who have earnestly labored for the development of porcelain art in dentistry. The many suggestions received from his confreres have been invaluable to him, and it is with their assistance that he attempts this work. He claims no originality, but desires to give a compilation of that which seems to be best from the writings of many of the ablest porcelain workers.

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The problem of aborting or abating caries of the teeth, is one that always has, and always will confront the dentist; and until we are able to prevent dental caries, our principal work will be to check it. In order that caries may be abated to the greatest possible extent, it is necessary that the affected portion of the tooth be removed and replaced with a substitute. There has been a desire on the part of many to find a substitute material that would satisfy the esthetic sense by simulating the natural tooth, while also affording permanency of the operation. That desire has found frequent expression and experiments have been made with a number of materials; the two that have received the most attention have been cement and porcelain. As the former has so far failed to fulfill more requirements than the latter, our efforts are best directed in perfecting the methods of filling teeth with porcelain.

While porcelain seems to present hygienic advantages, along with its cosmetic values, it is by no means a prophylactic filling, and unless prophylaxis is practiced by both dentist and patient, many good fillings will fail. It is essential that the patient should keep the mouth as nearly hygienic as possible, and that the dentist should utilize prophylactic measures during the operations.

The art of filling teeth with porcelain is comparatively new, and it may be said that it is still in a developmental stage. Porcelain as applied to the dental art prior to 1885 was practically confined to the manufacture of teeth, crowns, and rods used as "cavity stoppers," and the construction of continuous gum dentures. About this time a method of constructing glass fillings by fusing powdered glass into positive molds of the cavity, constructed of an investment material, was introduced in Europe. Shortly afterward inlays were produced in America, by burnishing matrices into the cavities and fusing porcelain into them. By the untiring efforts of a few dentists in various sections of America and Europe, the subject of porcelain as a filling material has been kept before the profession.

Too much credit can not be awarded the pioneers of porcelain inlay work, and we wish to pay our tribute to all those gentlemen, through whose untiring efforts, and perseverance, it is possible for us to accomplish such artistic results. The stimulus engendered by the efforts of these earnest workers, resulted in the development of this art to a higher standard and caused others to begin studying the advantages of this material; so in 1900 a wave of enthusiasm burst forth from all parts of the globe, and now the methods of filling teeth with porcelain are familiar to many dentists. This advancement was made possible, in a measure, by the increased facilities and improved products furnished by the manufacturers.



It is true that the application of porcelain has been indiscriminately and injudiciously employed. This has resulted from over enthusiasm on the part of a few, and ignorance of the properties of porcelain and the principles of inlay work on the part of many.

Porcelain inlays have passed the experimental stage, and their value as cosmetic fillings is more universally recognized.

The beginner should comprehend that a good porcelain inlay worker must have a keen observation; a thorough knowledge of the principles of inlay work and of the properties of porcelain; a mastery of the technique and a knowledge of the principles of color formation, with the eye trained to detect the delicate hues of a color. While it is desirable to have a thorough theoretic knowledge of porcelain inlays, it is impossible, however, to perform operations in this branch of dental art, without proper technical training.

That we may be better acquainted with certain terms used in dental porcelain art, let us consider the following glossary:

**Glossary of Technical Terms.** *Dental Porcelain.* A material composed of silicon oxid, the silicates of aluminum, potassium and sodium, which becomes a hard dense mass by the process of fusion.

*Silex.* The oxid of silicon, which is a white, highly fusible, moderately hard, crystalline substance.

*Kaolin.* The hydrated silicate of aluminum, which is white, opaque, refractory clay, resulting from the decomposition of feldspar.

*Feldspar (Orthoclase).* The silicate of aluminum and potassium with varieties and in which the aluminum is partially replaced by sodium. It is a translucent, moderately high fusing substance, and varies in color.

*Fusion.* A chemico-physical change produced by subjecting porcelain to enough heat units for a given time to cause a rearrangement of the molecules, with partial vitrification, and a glaze of the surface of the mass.

*Soft Biscuit.* A state resulting from heating porcelain sufficiently to harden it only enough to permit it to be carved.

*Hard Biscuit.* A state resulting from heating porcelain sufficiently to harden it enough to prevent carving, but yet not enough to produce shrinkage.

*High Biscuit.* A state resulting from heating porcelain sufficiently to obtain shrinkage, but not enough to produce glaze.

*High Fusing Porcelain.* A porcelain which requires more than five minutes to fuse at a heat not exceeding 2,000 degrees F.

*Low Fusing Porcelain.* A porcelain which requires less than five minutes to fuse at a heat not exceeding 2,000 degrees F.



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*Basal Ingredients.* Those ingredients which form the fundamental mass of the porcelain. Viz.: silex, kaolin, and feldspar.

*Flux.* A material used to increase the fusibility of porcelain.

*Pigment.* Metals or their oxides which, when added to porcelain and heated to a high degree, will produce a definite hue of color.

*Frit.* An intense pigment which is fused with feldspar and flux and then ground to a fine powder and used as the coloring material for dental porcelain.

*Basal Body.* Porcelain composed of the basal ingredients and the pigment. This includes such terms as block body, tooth body, etc.

*Foundation Body.* A basal body, the fusibility of which has been increased by the addition of a flux, and one which requires more than two minutes to fuse at a temperature of 2,100 degrees F.

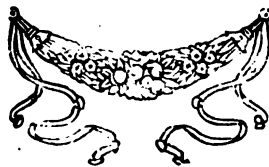
*Enamel Body.* A basal body with enough flux added to give it greater fusibility than that of the foundation body.

*Foundation.* That portion of an artificial tooth, crown, or inlay, which takes the place of lost dentin.

*Enamel.* That portion of an artificial tooth, crown, or inlay, which takes the place of the lost enamel.

*Glaze.* A highly translucent, colorless, vitrifiable substance which, when applied to the surface of porcelain fuses at a lower temperature than the enamel, produces a highly glazed surface.

*Platinous Gold.* An alloy of gold and platinum containing less than 50 per cent. of platinum.







### **Some Considerations in Retention.**

HERBERT A. PULLEN, D.M.D., Buffalo, N. Y.

*Read before the American Society of Orthodontists, N. Y., Dec., 1906.*

The earnest workers for the advancement of orthodontia along scientific lines, have recognized for some time past the undeveloped possibilities in the field of retention of corrected malocclusions. To realize that improvement in technic and method in the construction of simple, efficient and esthetic retaining appliances is a great present necessity, we have only to observe the numbers of failures which are daily called to our attention.

In my opinion, there are three reasons for this state of affairs; first, because the rapid strides of diagnosis, prognosis, and treatment have outstripped the latter consideration of retention; second, the advancement in retention methods have been made by individuals, and no systematic collection and arrangement of the various individual methods has been attempted; third, it has taken some time to reduce the complicated retaining devices of the past into simple mechanisms with an efficiency viewed from the standpoint of retaining of the normal relationship of the inclined planes of the cusps of the teeth in occlusion.

The importance of the retention problem naturally increases with the progress of treatment toward perfection, and it requires the same minute attention to detail and method.

Experience is really the best although the hardest teacher, for the first failure of the novice will force him to realize the value of the



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mechanical principles of force and resistance, of physiological laws of growth and development of alveolar processes, of art and esthetics.

Surely, the attainment of the ideal in occlusion and facial harmony ought to be enough to ask of the skill of the operator without the extra problem of retention, with all its vagaries and complications.

Truly, we can say that orthodontia is not only an exact, but an exacting science, in its demands upon the knowledge and skill of the humble delver into its mysteries.

It is with a great deal of pride that I can say that I believe the greatest advance in the developments of retention methods has been made by the American Society of Orthodontists, through the individual and organized efforts of its members to attain perfection in method and results in their chosen field.

Much has been said and written about the ease with which the ready made appliances may be adapted, and many individuals believe that the science of orthodontia consists in the simple application of the arch and molar bands, and that the restored occlusion is retained in this condition by virtue of its own temporary integrity or perfection without further mechanical retention.

Such a cramped conception of the requirements of orthodontia belongs only to the novice and the inexperienced, who learns only through failure to secure results and maintain them, that orthodontia is a science which requires an unusually high order of skill and ingenuity, and an extended knowledge of its mechanical and physical aspects by those who practice it successfully.

A rather late realization of the truth often comes to the beginner, when after dismissing a case with perhaps no retention at all, or at least an inefficient apparatus, the return of the malocclusion causes him to reflect on the wisdom of foreknowledge of the requirements of retention.

Just at this point I wish to lay especial emphasis upon one fact: *although normal occlusion is attainable in the correction of malocclusion, it can not be depended upon for retention except in simple and special cases, or after varying periods of fixed retention of the teeth and arches with appliances especially constructed for the purpose.*

At least we can congratulate ourselves that retention is a field in which the ready-made appliance has little, if any, use, and that in its varied characteristics of mechanical construction, the individual can give scope to his ability in the attainment of perfection, in the mechanical artistic and esthetic features which the lover of the art alone can enjoy.

Where, except in a previous practice of dentistry, consequent upon a college training in the principles of dental science, can the young man entering the field of orthodontic practice, hope to receive that training in



## ORTHODONTIA

mechanics which will enable him ever to rise above the mediocre in his ability to construct the often times necessarily complicated retaining appliances?

Is the M. D. degree alone any guarantee of the mechanical fitness of an applicant for admission into your rank? Is it even a guarantee of his fitness as an oral surgeon, possessed of sufficient knowledge of dentistry to enable him to understand the diagnosis and treatment of the simplest untoward symptoms which might develop in the care of a case of malocclusion?

Experience has already answered these questions in the negative, and the time is soon coming when these notions will disappear like the fog under the sun's rays, through a clearer perception of the requirements of the science of orthodontia.

**Importance of Retention.** Retention of teeth and arches which have been restored to normal relations of occlusion is as important in its bearing upon the success of the work of the orthodontist as the treatment itself, since in almost every case it is a necessity for the permanence of the result, both of occlusion and of facial harmony.

Many an otherwise successfully conducted case has come to failure because the principles of retention were not understood, or else were intentionally ignored.

In the first place, the retention of a corrected malocclusion is a matter of more than a few weeks in point of time, usually, many cases requiring months and some of the more severe, several years of fixation in order to overcome the resistance of the fibers of the peridental membrane and the tendency of arches to contract and assume their original shape after expansion and other operations thereon.

*Retention may be defined as the maintenance of sufficient antagonism to the forces tending to cause the return of a corrected malocclusion to its original condition, to ensure the permanence of the normal relationships of occlusion which have been established.*

If the forced effort to return is greater than the antagonizing resistance of the retaining apparatus, the retention can not be perfect and more or less return of original malpositions of teeth and arches may be expected. An equilibrium of these forces must be maintained in order to secure proper retention.

There are two principles in the consideration of the retention of the teeth which should be studied in every case; viz., the physiological and the mechanical, the former dealing with the changes during and subsequent to tooth movement, the stage of development of the arches, the resistance of the fibers of the peridental membrane, and the varying



ITEMS OF INTEREST



FIG. 1.



FIG. 2.

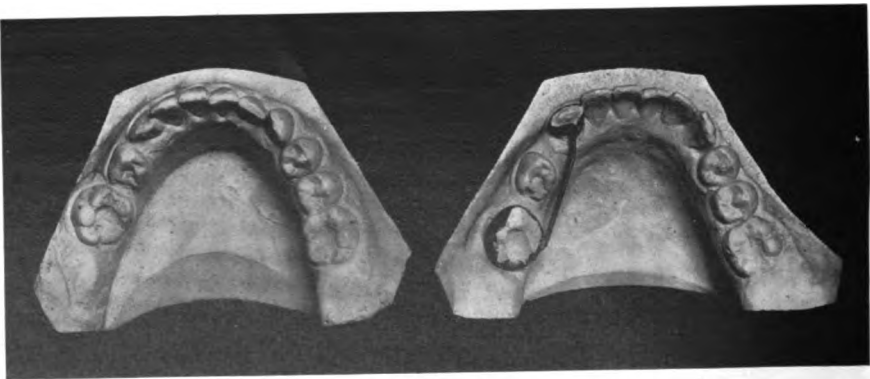


FIG. 3.



densities of the alveolar processes, etc., and the latter, with the study of resistance to return tooth movements and the construction of the simplest and most efficient appliances which will answer the requirements of retention.

The alveolar processes being superimposed upon the underlying bone of the maxilla and mandible, and continuous in development and resorption with the development and loss of the teeth, concerns us chiefly in the study of the physiological changes in the tissues surrounding the moving teeth.

**Retention During Development.**

It is reasonable to suppose, from the rapidity of development of the alveolar processes during certain stages of the eruption of the permanent teeth, that the movement of the teeth at the time when these changes are taking place, conforms most nearly to a natural and physiological process, and that the amount of absorption of alveolar processes in advance of moving teeth is comparatively slight, the change in these structures being analogous to the natural developmental changes which would occur in case no malocclusion had existed.

For example, at the age of six years, that being the stage of development of the arches in the treated case in Fig. 1, any expansion of the arch, or gaining of sufficient space for the eruption of the developing permanent teeth, serves only to assist Nature in her own retarded developmental processes, which through some slight cause, either local or remote, have not been uniform nor sufficient for the accommodation of the teeth which may be ready to erupt.

The more experience the orthodontist has in correcting malocclusion of the teeth of children, or in its prevention, by simple and painless operative methods, the more does he become convinced of the manifold advantages to be derived from the treatment of these cases prior to or during the stage of rapid growth that is exhibited during the eruption of the permanent teeth and the development of the alveolar processes at this time.

Whatever may have been the immediate or remote cause for the arrest of development in the anterior part of the arch shown in the left cast in Fig. 1, it is certain that the restoration of the spaces for the eruption of the permanent laterals, and the mechanical widening of the arch, most nearly simulates Nature's efforts to produce that growth and development which should be normal in the case.

In other words, we can not consider the operation of expansion in this case, as shown in the cast on the right, to be an unnatural widening



## ITEMS OF INTEREST

or enlargement of the dental arch, but simply an assistance to a natural development otherwise unattainable through arrested developmental conditions.

It is often noticed in cases of this kind that the tissues in the immediate neighborhood of the operation begin to develop quite rapidly, and many times an erupting tooth which has been arrested at a certain stage by reason of the undeveloped condition of the arch, will begin to erupt very rapidly during the period of expansion and making of room for it in the arch.

One principle which should be observed in these early operations is the gaining of more than sufficient space for the accommodation of

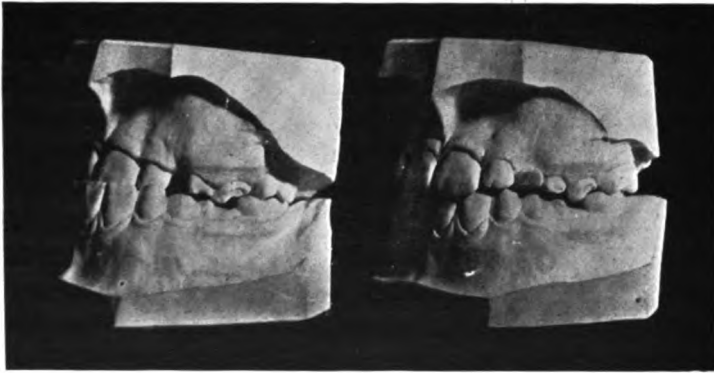


FIG. 4.

the erupting teeth, as more or less space is lost through the settling back of the teeth after expansion, even with the retaining appliance in position, so that what was apparently sufficient room by actual measurement for a developing permanent tooth, would be found to be slightly diminished and inadequate for the placing of this tooth in its proper position in the arch.

This condition of affairs must be taken into account in the retention of these regained spaces, and an appliance used which will most perfectly answer the requirements of fixation of the positions of the adjacent deciduous teeth which have been moved to make room for the eruption of these permanent teeth.

An appliance which will efficiently retain the anterior part of the arch during the developing period, and attached entirely to the deciduous teeth, is shown in Fig. 2, being the retention of the anterior part of the



arch of the case shown in Fig. 1. A great amount of strength in a retaining appliance attached to the deciduous teeth is never necessary because of the slight resistance they afford to the action of force appliances in their movement, due to their small short roots, and the cartilaginous nature of the alveolar process during their dentition.

As the retention of the deciduous teeth is only a temporary affair, such retention should be under the watchful care of the operator at frequent intervals, so that on the early indications of the absorption of the roots of the deciduous teeth supporting the retainer, the appliance



FIG. 5.

may be removed and reconstructed upon other teeth whose rigidity will be of sufficient duration for the permanence of the result established by the operation.

There is also this difference between the retention of the deciduous teeth and the permanent ones; retention of the deciduous teeth is a process of temporary fixation for development of the arch alone, while retention of the permanent teeth is often a necessity for the maintenance of them in their relative positions in the arch, regardless of development, although, of course, the permanent teeth are also retained in certain positions for the purpose of securing development of the arches when necessary.

In the cast on the left of Fig. 3, it will be observed that the second deciduous molar on the left side of the arch has been prematurely lost, and its space closed up in the manner usually followed in such cases, there being insufficient space for the eruption of two bicuspid between the permanent cuspid and first permanent molar on that side.



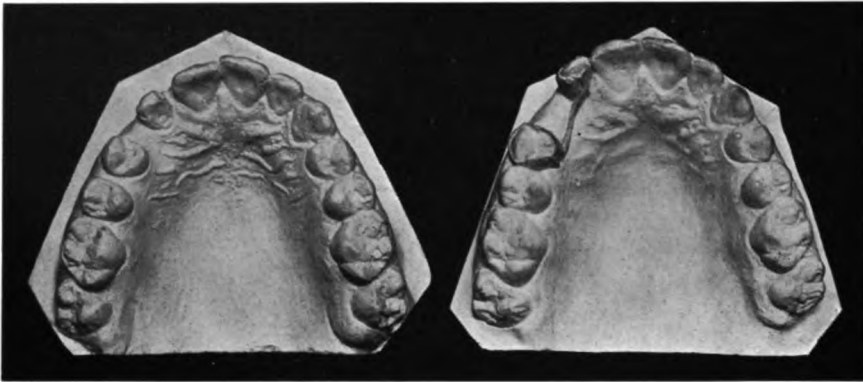


FIG. 6.



FIG. 7.

The retention of the regained space after operation may be noticed in the cast on the right, both cuspid and molar being banded and a strong bar soldered to the lingual surface of each band, the whole being cemented in position until the eruption of the bicuspids.

It is a well known fact in orthopedic and orthodontic practice that the rapidity of the restorative or building up process in bony tissues, as after setting of fractures, is proportionate to the degree of fixation of the parts during the period immediately following the corrective operations.

To the end, therefore, of shortening the time of retention as well as obtaining a more perfect development and greater strength of the tissues surrounding the moved teeth, and avoiding the possibility of any loss from contraction of arches after expansion or of regained spaces, the fixed retaining appliance, with cemented bands, is now generally to be preferred to any other.



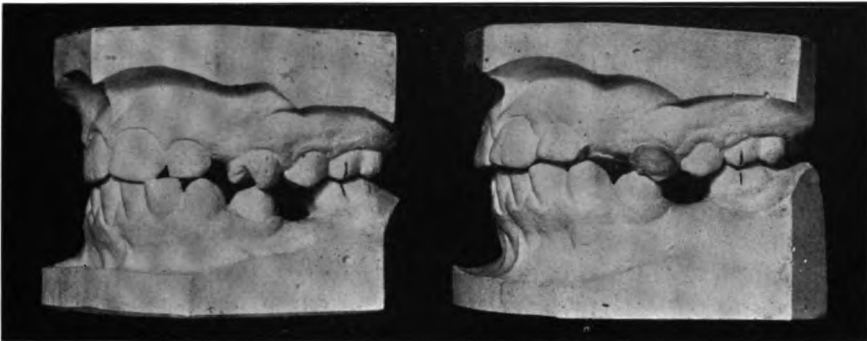


FIG. 8.



FIG. 9.

**Roof-plates.** To illustrate, in the past, the removable roof-plate, as seen in Fig. 4, with spur extending out through the space regained for the cuspid, was long considered efficient for the temporary character of the retention, as the occlusion was sufficient to retain the four incisors and very little tension was required to hold the space open for the cuspid.

After continued trials of this plate, the writer was compelled to give up its use, because of more or less loss of the space gained for the eruption of the cuspids, and the inconstant and unreliable pressure exerted by an appliance which was retained in position only by suction, or a couple of tiny spurs imbedded in the plate and extending into the interproximal spaces between teeth on opposite sides of the arch.

A removable plate which is efficient to a greater degree, in similar cases, is shown in Fig. 5, the Jackson spring clasp attachments serving to make the plate remain in position very firmly during the time necessary for the cuspid to erupt. An artificial tooth attached to the rubber spur which extended through the cuspid space, gave an esthetic appearance to the appliance when in position.



## ITEMS OF INTEREST

Although the writer finds an occasional place for the use of the roof plate with the spring clasp attachments as shown in the cut, a fixed retention with bands and spurs has proven much more satisfactory.

### **Fixed Retainers.**

An exactly similar case in Fig. 6, exhibits a retaining appliance, which, by having two cemented bands connected by a strong spur, leaves no question as to the constancy of fixation and perfect retention of the space for the unerupted cuspid.

A little more esthetic, perhaps, in its construction, and fully as efficient, is a fixed retention from one first bicuspid to the other, in Fig. 7,



FIG. 10.

retaining the regained spaces for the eruption of both cuspids. Bands are cemented upon both of the first bicuspids, having previously been united with the strong 16 gauge bar of clasp metal extending along the lingual surfaces of the incisors, and having spurs of 21 gauge (B. & S.) clasp metal bent around the distal angles of the lateral incisors to the labial surface to hold the four incisors intact.

This appliance is as simple and esthetic as can possibly be constructed for a case of this kind, and the writer believes that it could well be used as a standard retention for similar cases in which no rotation of any extent is necessary in the incisor region.

The left side of the case in occlusion, before and after treatment, is shown in Fig. 8, and one is struck by the inconspicuousness of the retaining appliance from this view.

In confirmation of a theory which has long been held by many writers on orthodontia, I have collected, in one case, at least, sufficient evidence to warrant a firmer belief in certain physiological processes occurring after tooth movement, which are of intense interest to the orthodontist, especially in the consideration of certain features of retention which have puzzled the ablest and most acute observers of the functional disturbances coincident with tooth movement.



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In an operation on a thirteen-year-old boy for the extraction of a supernumerary right lateral incisor, and its replacement by its natural substitute, whose position in the arch the supernumerary had usurped, there were taken three X-ray pictures of the seat of the operation between the right central incisor and right lateral incisor, representing three stages which might be of scientific value in the study of bone changes coincident with orthodontic operations, one being taken at the beginning of treatment, the second, after extraction of the supernumerary

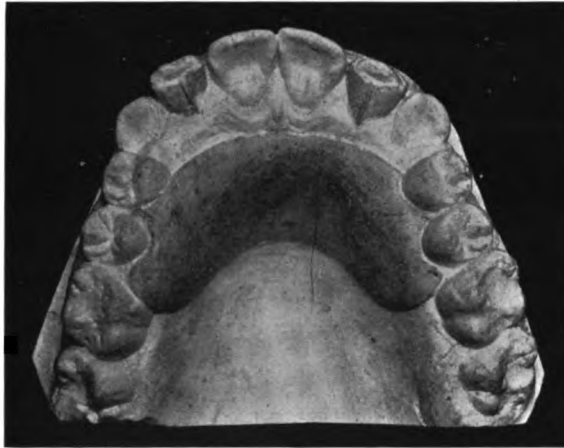


FIG. II.

and correction of the malocclusion, and the third, being six or eight months after a period of fixed retention of the normal lateral in its proper position.

The first radiograph exhibited the normal relationship and density of the bony tissues between these teeth; the second, considerable absorption of tissue after the extraction and the breaking down of tissue ahead of the moving lateral; the third, a very complete and perfect reconstruction of the bony septum intervening between the central and lateral after the fixed retention, for a period of at least six months, of the normal lateral.

Although this evidence of bone reconstruction after resorption has been carried out in but the one case, it is a source of some satisfaction to observe the working out of Nature's processes through the medium of the X-ray, especially if they are confirmatory of theories which we know must be true in order that a permanence of the results obtained by orthodontic operations may be assured.



ITEMS OF INTEREST



FIG. 12.

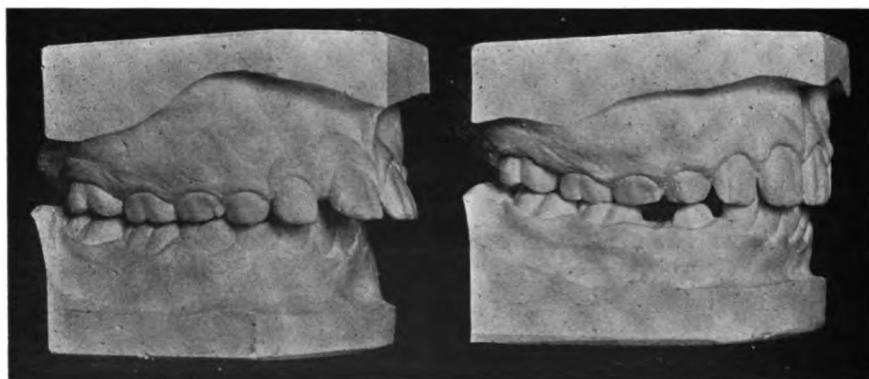


FIG. 13.

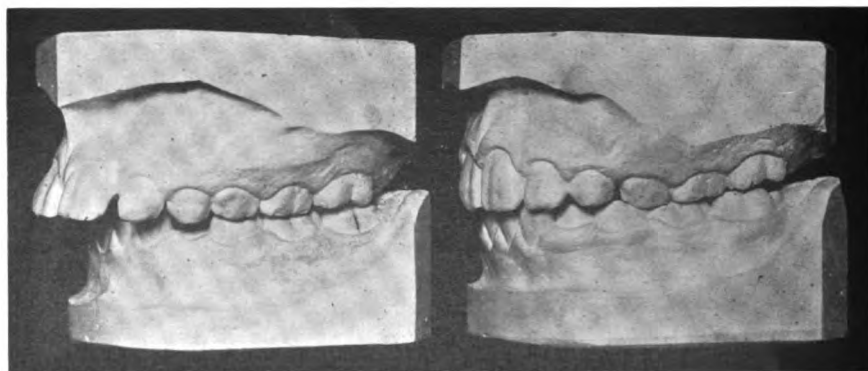


FIG. 14.



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We have become accustomed to divide the retention of the individual arches into the portions anterior and posterior to the cuspids, retaining the alignment of the incisors with a fixed retaining apparatus, and the enlargement of the arches after expansion with a removable apparatus, usually in the form of a plate.

The average case requiring this method of retention is represented by a contraction of the anterior part of the arch, with the cuspids out-

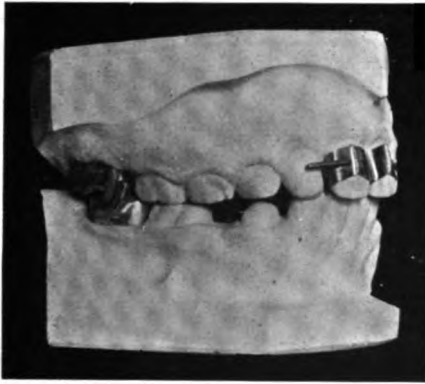


FIG. 15.



FIG. 16.

standing, the usual retention of the incisors and cuspids being an appliance consisting of two bands upon cuspids, united by a strong lingual bar touching the lingual surfaces of all of the incisors.

Whereas this appliance is effective in many cases, in others it does not seem to answer the purpose as well.

For example, in Fig. 9, the retention of the anterior part of the arch is obtained by banding the laterals, extending labial spurs over the cuspids to keep them in place, and a lingual looped wire from one lateral band to the other, the loop answering the purpose of allowing the spaces between the incisors to be closed up during the first few days of retention and bringing a pressure to bear upon the labial surface of the cuspids sufficient to keep them in alignment.



ITEMS OF INTEREST

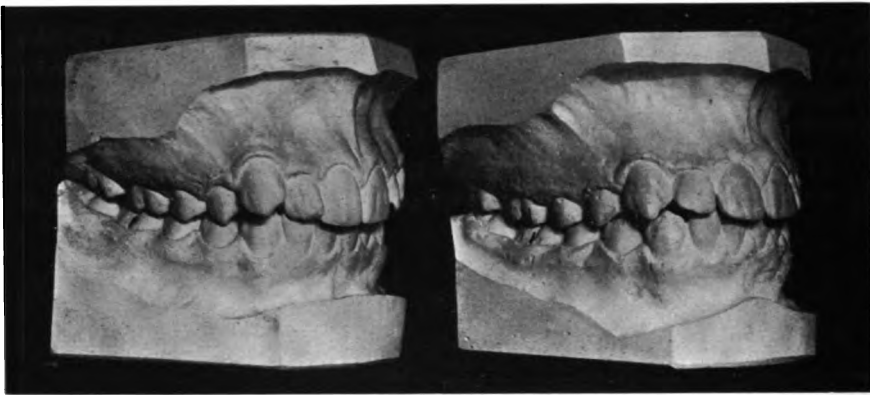


FIG. 17.



FIG. 18.

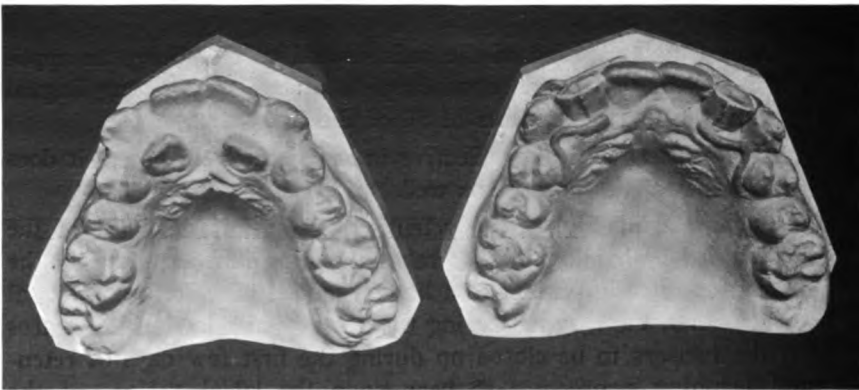


FIG. 19.



The loop is contracted by means of a pair of round nosed pliers which can be made to bring pressure on either side of it.

A variation from this appliance for the purpose of retaining the anterior part of the arch is seen in Fig. 10, the laterals being banded, and the bands connected upon the labial surface by the retaining wire which also passes over the labial ridges of the cuspids. Advantage can be taken of the settling backward of the incisors with this appliance in position, to bring sufficient pressure to bear upon the labial surfaces of the cuspids to keep them harmoniously aligned, a feature which is not possible in the usual retention from cuspid to cuspid, the bands upon each of these teeth being connected with the lingual base wire.



FIG. 20.

Its worst feature is conspicuousness, which will offset its otherwise good qualities.

The retention of the posterior part of the arch after expansion is usually accomplished with the removable roof-plate, which, although not conforming to the laws of fixation of a retaining appliance, seems to have been more or less popular on account of its easy construction and adaptation.

In the form shown in Fig. 11, the roof-plate depends upon adhesion and small wire extensions into the interproximal spaces between the bicuspid for its support, relying upon the laterally inward pressure of the arch to return to its original position to assist in retaining the retaining appliance, a rather unreliable support in view of the inconstancy of position of the appliance.

The roof-plate in this form often fails because of the great pressure of the return forces causing it to slip out at one side, when its usefulness is over.



## ITEMS OF INTEREST

It can be made effective to a greater degree by the addition of the Jackson spring clasp attachments around bicuspid or molars on both sides as the case may need.

### **Lingual Arch Retainers.**

The use of the lingual arch for retention, as suggested by Dr. Lourie, invites many possibilities of artistic and esthetic retention of the teeth.

In Fig. 12, its use in retaining the incisors from going back into their sockets after being elongated is effective, especially with the spur over the occlusal surfaces of the deciduous molars to assist in the support of the lingual arch in position.

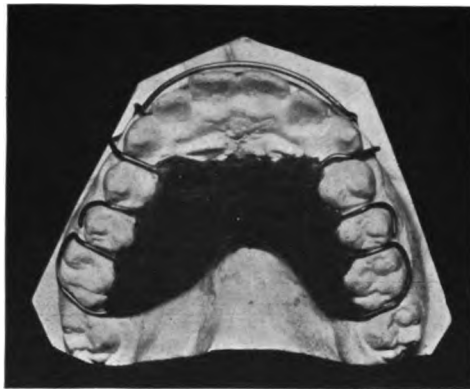


FIG. 21.

The arch is soldered at either end to the ends of the lingual screws of the molar clamp bands which in this case were placed upon the second deciduous molars.

Following closely the curve of the arch, the lingual wire passes under lugs soldered to the lingual surface of the incisors, and the molar clamp bands with the lingual wire are first cemented into position, and then the incisor bands are filled with cement and slipped between the teeth and the wire and forced into place.

The retention of incisors which have been rotated may be accomplished by the lingual arch method by attaching spurs to the lingual angles of bands upon the incisors which have been rotated, mesially or distally according to the direction necessary to overcome the return tendency, these spurs to be bent around the lingual arch in such a way that they are very firmly attached.

Fig. 13 illustrates the right occlusion and Fig. 14 the left occlusion, before and after treatment, of a case of Class II, Div. I (Angle), the



patient being nine years of age, and having the deciduous cuspids and molars still in position.

It is a good plan to retain these cases until the permanent cuspids and bicuspid have erupted into occlusion, so as to get the benefit of the retentive force of their inclined planes in occlusion.

A buccal view of the retaining appliances used in this case is shown in Fig. 15, the upright spurs upon upper and lower molar bands serving to retain the normal mesio-distal relationship established between the arches, and the bands upon the incisors acting in conjunction with a lingual arch, effectually retains the upper incisors in their normal positions.



FIG. 22.

The buccal spurs upon the molar bands are constructed of square German silver wire, which is admirably adapted to this use, as it gives flat surfaces for the sliding of the inclined planes of the two spurs when antagonizing during occlusion.

A view of the lingual arch wire in position on this case is seen in Fig. 16, attached to the ends of the screws on the molar clamp bands, and following the curve of the arch accurately close to the necks of the teeth, and in the incisor region, having attached to it by small wire spurs bent around its circumference, the two incisor bands, which, with the addition of spurs upon their labial surfaces extending over the laterals, retain the four incisors from moving forward.

These retentions are rather difficult to make, but that they must come into general use for reasons of esthetics and efficiency, seems probable at this writing.



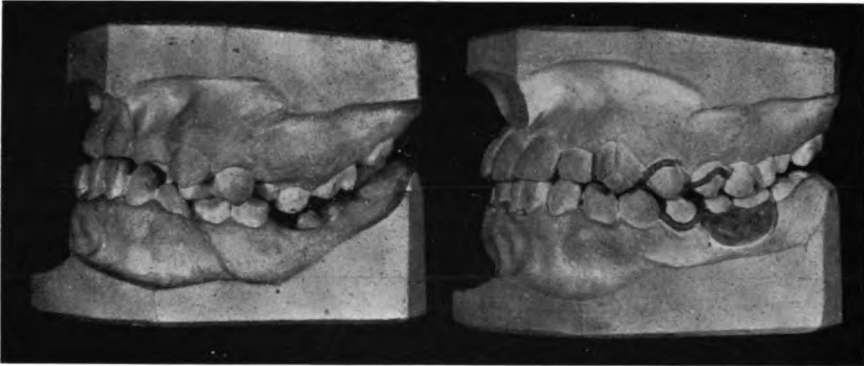


FIG. 23.

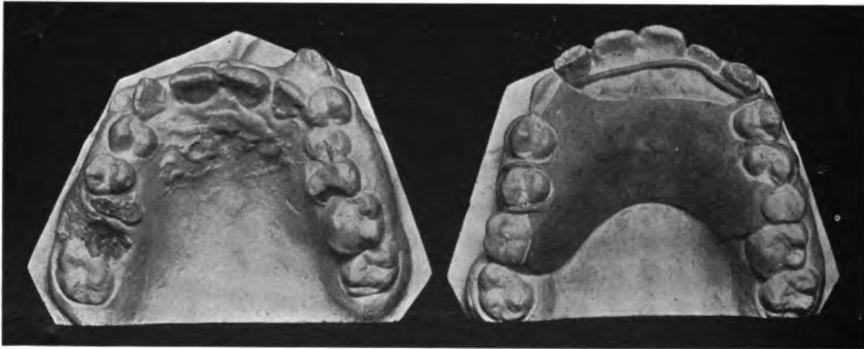


FIG. 24.

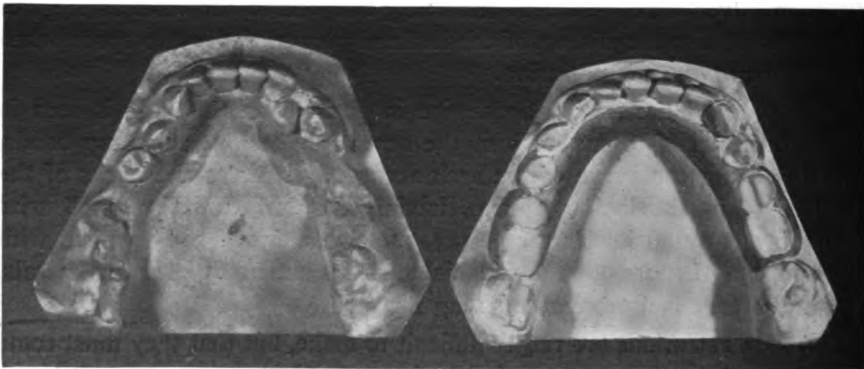


FIG. 25.



## ORTHODONTIA

Fig. 17 illustrates the before and after treatment models of a case of Class II, Div. 2, subdivision, in which there has been a shifting of the occlusion on the right side only from distal to normal.

A unique feature of the retention is the spur extending from the band upon the right lateral incisor over the labial surface of the cuspid (Fig. 18), which assists in retaining the upper cuspid and bicuspid on the right side from moving forward. The band and spur also serve to keep the lateral from rotating, for which purpose it was originally intended.

The interlocking spurs upon the first molars retain the corrected occlusion in the molar region.

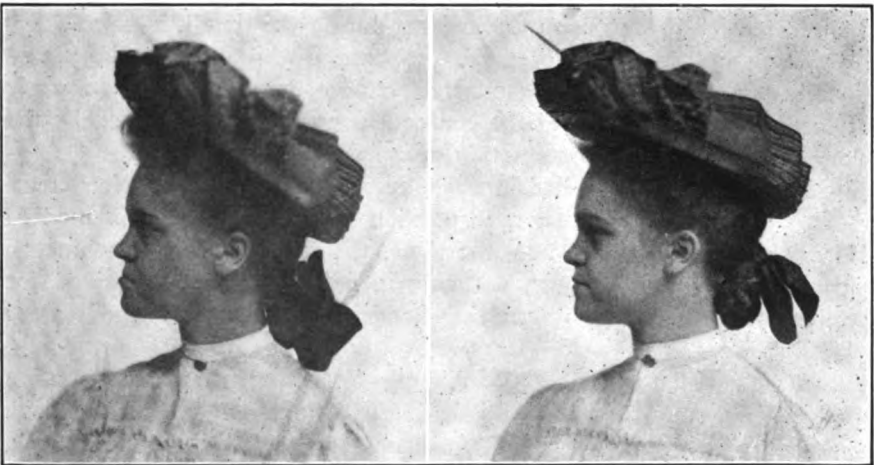


FIG. 26.

The retention of laterals which have been inlocked is sometimes difficult owing to the lingual inclination of their roots immediately after their movement into alignment, and their tendency to slip back into their former positions inside of the arch.

In a case like that shown in Fig. 19, the usual cuspid to cuspid retention has proven ineffectual in the writer's practice, it being found necessary to band both laterals and cuspids, with labial spurs upon the lateral bands extending over the adjoining teeth, and lingual spurs upon the cuspid bands, extending over the lingual surfaces of both laterals and bicuspid. This retention is not permanent, as the full development of the anterior part of the arch has not taken place, but it answers the purpose of effectually holding the lateral incisors in place until such development has occurred as will place the roots of these teeth in their



## ITEMS OF INTEREST

proper relationship with those of the adjoining teeth, when a slight readjustment of the anterior teeth may be necessary.

The retention of the protrusions of Class I has always proven a difficult matter, but the favorable results from the lingual arch attached to incisor bands in Class II, as in Fig. 16, seem to indicate that the same retention can be used to advantage in a protrusion of Class I, Fig. 20, where the added strain of buccal spurs for retaining the molar occlusion need not be reckoned with.

Up to the present time, the retention of this class of cases in the writer's practice has consisted of a removable plate, Fig. 21, with spring clasp attachments on molars and bicuspid, and a spring wire extending around the cuspid and incisors, and capable of being so adjusted that a slight tension is kept upon the incisors during the time it is worn.

There are some cases occurring in practice which seem to be exceptionally difficult to diagnose and treat on account of the loss of many of the permanent teeth, and the consequent complications caused by the elongation of teeth, and contraction of arches, etc.

Such a case is exhibited in Figs. 22 and 23, before and after treatment, with retaining appliances in position in the after treatment models. Here, as in the previous case, the plate, with spring clasp attachments, plays a very important part, not only in retaining spaces regained for permanent teeth, but also supplying artificial substitutes attached to the plate itself.

A view of the upper casts of this case in Fig. 24, shows the retention of five of the anterior teeth with the lingual spur from lateral to cuspid, and a roof plate, with spring clasp attachments and three artificial teeth, effecting the retention of the rest of the arch.

Another plate with spring clasp attachments and artificial substitutes for natural teeth which were missing, accomplishes the greater part of the retention of the lower arch as seen in Fig. 25, in position in the cast on the right.

The profile of this case, before and after treatment, is exhibited in Fig. 26, as illustrative of the effectual retention of the normal position of the teeth and arches by the appliances just shown in position on the casts.

In extreme cases of Class II and III, the continued use of the intermaxillary elastic from one arch to the other for an indefinite period is proving an efficient aid in those cases in which the usual methods of retention does not seem adequate. These elastic bands are so adjusted that they will just counterbalance the tendency of the arches to return to their positions of mesial or distal occlusion.





## Clinical Reports of Some Cases of Oral Surgery.

By DR. J. E. POWER, Providence, R. I.

*Read before the New Jersey State Dental Society, Asbury Park, July, 1906.*

Mr. President, ladies, and gentlemen; on account of the number of cases which I am going to present this evening, by the aid of the stereopticon, I have decided to take the liberty of simply describing the cases which have come under my observation and treatment, rather than of presenting an essay upon the subject of oral surgery. I shall be glad to suggest, as far as my limited experience will permit, the treatment of any case which your honorable body may see fit to present. It is possible that some of the slides will not be new to all, but to many they may prove novel and entertaining. From a large number of cases which I have had the good fortune to observe during a private and hospital experience, I have selected for your discussion only those which appear to me somewhat unusual.

### **Osteoma of Hard Palate.**

Fig. 1 is an osteoma of the hard palate. For years this patient wore a partial upper vulcanite plate. Instead of covering the whole roof of the mouth, it was cut away in such a manner that it came to the edge of the bony enlargement. About six months previous to her visit to me, the growth began to enlarge. She did not give much attention to this condition. It gradually increased until it assumed great proportions. About nine months afterward, the tumor had grown so large, that the natural functions of deglutition and articulation were interfered with to such an extent, that she sought medical advice. In due time, the



## ITEMS OF INTEREST

patient was referred to me, by her regular physician. After satisfying myself of the existence of the conditions already described, I advised the removal of the tumor by surgical procedure. The consent of the patient was obtained, and the operation was performed.

The operation consisted of making an incision through the soft tissues covering the hard palate (Fig. 2), from behind the two central incisor teeth, back to the soft palate. With a periosteal dissector, I freed

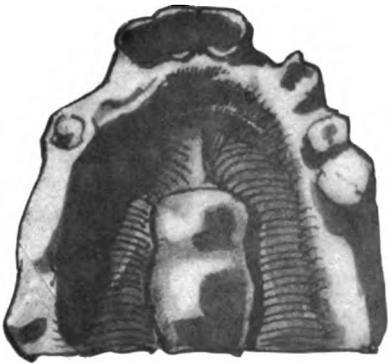


FIG. 1.

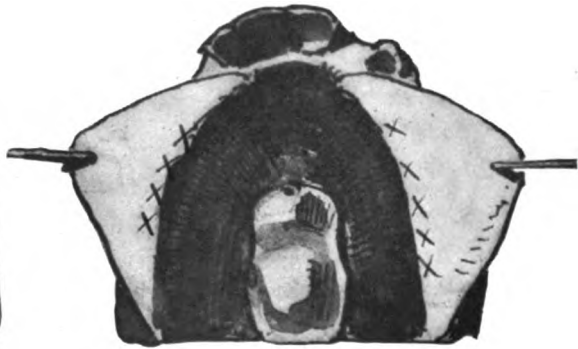


FIG. 2.

the tissues covering the hard palate, and reflected them back as far as the ridge on both sides. I then passed a silk ligature through the reflected membranes on each side, and my assistant, by virtue of these ligatures, kept the field of operation clear while I removed the tumor. In an operation of this kind, it is well to reflect the tissues covering the roof of the mouth back as far as possible. By proceeding thus, you minimize the possibility of the serious injury which is often brought about by undue pressure exerted upon the sides of the reflected tissue (indicated by crosses in Fig. 2), in removing a tumor of this kind. The procedure was as follows: A bur rapidly revolved in the engine was directed through the tumor in an oblique direction, backward and upward toward the hard palate. Then the instrument was withdrawn, and directed through the growth from the summit, toward the base, in such a manner that it would meet the end of the oblique canal made by the first step with a bur. Then the instrument was withdrawn and reintroduced through the side until it met the other two canals. Finally a number of holes through the tumor weakened it to such a degree that I introduced a steel instrument, and pried this section away. This process was repeated until the whole growth was removed. Next, I used a large bone bur to smooth the projecting particles of bone, washed the surface



and brought the flaps together as is shown in Fig. 3. Five or six sutures held them in position. Healing was accomplished by first intention. The ligatures were removed in due time, and patient was discharged cured. This method of sectional removal was resorted to in this case, in view of the fact that a chisel could not be used on account of a danger to the patient, that of inspiring the small particles of the bone, which would necessarily be broken away, during the chiseling process.

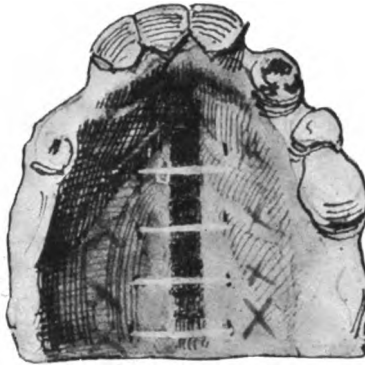


FIG. 3.

Fig. 3 shows the flaps drawn together. Twenty-four hours after, the patient's temperature was normal. In adjusting the ligatures, I placed them some distance apart as shown by crosses in Fig. 3. After such an operation, there is generally some vomiting, and the convulsive action of the muscles is certain to tear the tissues through which the ligatures are passed. This patient was thirty-two years of age.

**Arsenical  
Necrosis.**

It is reasonable to suppose that this case (Fig. 4) is one of arsenical necrosis. The swelling does not appear in the picture as marked as it did in life.

It shows the much distorted face of a child, who was referred to me by her dentist. She had been under observation by this dentist for some time. About three months before she visited me, a tooth in which the pulp was partially exposed, had been "capped" by a dentist (not the family dentist). A few days previous to her visit to me, the tooth commenced to ache, with its subsequent swollen face, etc. Examination showed that the whole surface of the superior maxilla, from the central incisor tooth to the first bicuspid tooth, was involved, and the incisor teeth elongated as shown in Fig. 5. An operation was performed which consisted in removing the upper front teeth, which were very loose. I then curretted the bone as far as the bicuspid tooth, and upward



## ITEMS OF INTEREST

toward the floor of the nose indicated by line in Fig. 4. The patient made a quick recovery. The rapidity with which the degenerative process involved the bone, together with the history, leads me to believe that the tooth capping material contained arsenic. The characteristic destructive processes, which are associated with this form of necrosis, were present here. We never find a pathological condition, whether it be necrosis, or any other form, unless there is some cause for it. We can in this case, consistently exclude other possible causes. Therefore, I do not feel it unfair to presume that this condition was due to arsenic,



FIG. 4.



FIG. 5.

which formed a part of the capping preparation. The destruction of the bone in this case was extremely rapid; in three days the whole area was affected, and it was still spreading. In consideration of this testimony, it may not be unwise for those of you who use "capping" preparations, to examine more carefully the substance which you seal in teeth.

I hope to be able to show you by this case of necrosis (Fig. 6), that a medical incision may be made on the external surface of the face, and still remain concealed, to some extent. In the medical schools, we are taught to make a surgical, and never a medical, incision. From experience, I am willing to believe that a surgical incision means an incision about three or four times as long as is necessary. In dealing

### **Incision to Avoid Scarring.**



with unfortunate patients I endeavor to put myself in their place. I would much prefer to inconvenience myself, taking a longer time to operate, than render the result of the operation unsightly. A patient's face, whether it is man or woman, is a thing that the surgeon should handle with the greatest care, and the surgeon who disfigures the features of a patient, as the result of carelessness, is guilty of malpractice. In this case on (Fig. 6), the abscess was in such a condition that an external incision was compulsory. The text books teach us that the incision of an abscess should be made through the whole of said abscess. If this advice had been followed in this case, we would have had a scar



FIG. 6.

FIG. 7.

which would disfigure the boy for life. Instead of making an incision through the abscess, I made a small one under the jaw, and below the abscess as shown in Fig. 7. Then with a blunt instrument I communicated with the abscess from the incision, and curretted the dead bone. You can easily understand how readily drainage was obtained under these conditions. Daily irrigation was resorted to, and finally the patient was discharged cured.

**Empyema of  
Antrum.**

The next is a case of empyema of the antrum of ten or twelve years standing. The model which is being passed among you is made from an impression taken from the upper maxilla. Some ten years ago, the patient received an injury in the antral region, by being struck by a cow's horn. About a year previous to her visit to me, the swelling commenced within the area marked by dotted line in Fig. 8, but no pain was associated with it. She became alarmed, and thought that the en-



## ITEMS OF INTEREST

largement was malignant. My first step was to excise a small piece of the tissue, and have it subjected to a pathological examination. This step should be resorted to in all cases of oral surgery. In all cases, we are bound, in the interest of justice, to give the patient the benefit of such an examination. After receiving a negative report from the pathologist, I advised an operation which consisted of making an incision through the swelling, curretting and removing the dead bone. Then I

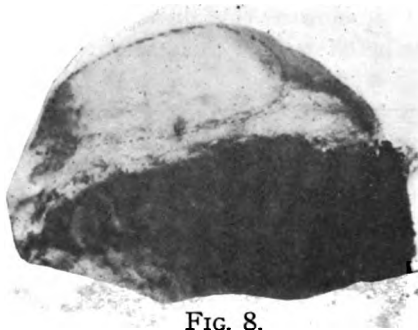


FIG. 8.

drained the antrum, washed the antral cavity thoroughly each day, and finally the patient made a complete recovery. This case is of interest, on account of the unusual location of the swelling.

### **Serious Result of Abscess in Temporary Tooth.**

The next is a most interesting case. A child about five years of age was suffering from an abscessed temporary tooth. He was taken to a dentist evidently of that class who believe it an unwise thing to extract a tooth while the face is swollen.



FIG. 9.

Basing his judgment upon a theory which is inconsistent with the first principles of pathology, this dentist told the child's parents that the



tooth should not be extracted until the swelling of the face had subsided. The pain increased very much from day to day, and the mother took the child to a physician for advice. He confirmed the advice already given by the dentist, but supplemented it by telling her to apply hot flaxseed poultices to the child's face. In forty-eight hours, the poultices did, as is always the case, an irreparable injury. The tissues under the eye became more highly inflamed, and the pus forced itself through as is shown in Fig. 9. The patient was now treated by the physician during the next five weeks, and at the end of that time, the whole of the left superior maxilla, and the malar bone, were involved. The case

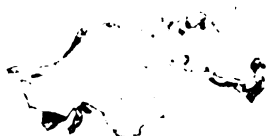


FIG. 10.



FIG. 11.

was finally referred to me, in the condition just described, including a high temperature. Pressure upon the face anywhere below the line of the eyes would cause a large quantity of thick pus to flow from the opening under the eye, from the nose, and from the mouth. I advised an operation, first explaining to the mother, the possibilities of such a step upon so serious a case; that even if operated upon, it was within the realm of possibilities that he might not recover. She finally consented. Two operations were performed upon the child. The first consisted of removing a large part of superior maxilla from the lateral tooth back to the tuberosity. This section did not extend to the center of the hard palate.

Fig. 10 shows a part of the bone removed at the first operation. Much of the specimen was lost, therefore this represents only a portion of what was actually removed. The operation consisted of placing my finger in his mouth between the teeth and cheek, holding the cheek out of the way while I dissected the cheek from the skull in such a manner that I could pass my finger up by the side of the jaw through the opening under the eye. By so doing, I was able to get a continuous passage. Irrigation was therefore made more thorough, and the small particles of necrotic bone, which have the power of re-infecting the parts operated upon, were washed away. I gave the little fellow considerable attention,



## ITEMS OF INTEREST

which amounted to about seventy visits. Generally we leave the dressings of such cases to the nurse. But this case had for me a sort of irrepressible fascination. I longed for the succeeding visiting time, feeling confident that I would be able to controvert any pathological changes more easily, if I took entire charge and was not dependent upon the reports of the nurse.

At the end of four weeks, another operation was performed which comprised the removal of a portion of the malar bone, which is shown in Fig. 11.



FIG. 12.

In operations for necrosis, I scrape the bone until I think I have scraped enough, and then scrape some more, and in dealing with this case, "I scraped some more" twice.

The restoration of the contour of the face, which you will see in Fig. 12, is due to the tissues becoming cartilaginous and filling the space formerly occupied by the bone. The break in the tissues under the eye was a little troublesome. It persisted in closing from the outer surface. To overcome this, I placed powder in the opening. The secretion under the eye, mixed with powder, formed a hard mass. The motion of the tissues against the hard mass produced irritation. This was causing another abscess to form. I knew that if I could find a powder which would be impervious to water, I could accomplish the desired results. Finally, after experimenting with several antiseptic powders, I was rewarded by finding one upon which water had little, if any, effect. The name of the powder is "Pulvola." Each morning I would break the adhesions on the outer surfaces which had formed during the night. I then filled the cavity with the above named powder. After a few days granulation began to take place in the bottom of the cavity, and the wound closed from the bottom. Restoration of the contour was the



result, instead of the unsightly depression and enlargement of the eyelid, which would have been the outcome if the wound had been allowed to close from without inward.

Every step in this operation has been done from the inside of the mouth. I always avoid making incisions on the external surface of the face whenever I can do so. If, however, we are obliged to make an external incision in the face, it is better to make it through one of the natural wrinkles of the face, for there it will at least be partially concealed. Following the second operation, the case progressed favorably for five or six days. Then pus began to form again. The inflammatory



FIG. 13.

path was working back toward the ear, and you can readily understand the dangers and complications which might arise, if the pus reached the temporo-maxillary articulation. So I made a small incision a little further back, of which no trace was left after the recovery.

**Arsenical  
Necrosis Resulting  
from Dyed Yarn.**

The next case is one of arsenical necrosis (Fig. 13). The patient had a high fever, and as a result, had been delirious. The seven or eight teeth which remained in position were all loose. The mouth was in a highly inflamed condition. There was intense pain, together with a marked lessening of his bodily resistance. It did not require great skill to diagnose this condition.



## ITEMS OF INTEREST

I advised an immediate operation, which consisted of curretting the infected area of the bone, from one angle of the superior maxilla to the other as shown in Fig. 14 I. The model which is being passed among you is a duplicate of the mouth after the operation was performed. I removed all the necrotic bone with a curette. This degenerative process had gone so far, that the inferior border of the bone was as thin as a piece of cardboard. I could feel the bone bend as I passed my curette over it. Within forty-eight hours the patient's temperature was normal. I dressed the wound each day, painting aromatic sulphuric acid (full strength) on the surfaces of the bone. I have found that this acid has a specific action in aiding the vital bone to throw



FIG. 14.

off that which is devitalized. The plaster cast corresponding to Fig. 14 II shows that the bone and tissues have filled in the space (contrary to the text-books).

A most interesting feature connected with this case, is the method by which he was infected. After I discharged him, I questioned him to ascertain the kind of necrosis with which I had been dealing. According to his replies to my questions, his disease was not necrosis. But from experience, I was equally sure that his disease was necrosis. When I first visited him I asked him some questions regarding syphilis. He denied ever having had any infection of that kind. I familiarized him with its symptoms in detail. In some instances it is well to take this precaution and describe the primary symptoms, especially in necrotic conditions, or any other condition where syphilis may be a probable factor. In many cases a person will say that he has never been infected by syphilis. He may know it by some other name, and if you ask him in a technical way about these things, he will say "no," because he does not comprehend what you mean. Therefore, it is wiser to go into details. I questioned him about gonorrhea to make sure that he did not confuse that with



syphilis, or syphilis with gonorrhea. He replied that he never had had an infection of any kind. Then I went into the other various kinds of infections, and his replies were negative. I was positive that he had had necrosis, and my last question was, "What do you use to clean your teeth?" I thought perhaps he used some of the preparations which are sold on the streets, that are said to make black teeth turn white in one night. He replied that he did not use anything to clean his teeth, with the exception of a piece of yarn, which he passed between his teeth to remove any particles of food which became lodged there. I asked him



FIG. 15.



FIG. 16.

if the yarn was colored, and he said that it was. I requested him to bring some to my office. I made eleven chemical tests for arsenic, and found its presence in nine of the eleven tests. Basing my conclusions upon this testimony, I think it reasonable to say that this case was one of arsenical necrosis, induced by the absorption of the drug into the tissues, from the yarn, during the time the patient used it for the purpose above described.

**Frontal  
Sinusitis.**

In Fig. 15 you see a sinus in the frontal bone, communicating with the frontal sinus. This patient had had several operations for the treatment of frontal sinusitis. She was among those who appeared for treatment at the hospital clinic. Examination disclosed the conditions you see, with the pus flowing from the sinus. The pain in the region of the malar bone, the frontal bone, and eye, was constant and intense. The history revealed the following facts: (a) that a dentist tried to extract the cuspid tooth but broke it in the attempt; (b) that she had been treated for septicemia three times; (c) she was treated surgically for frontal sinusitis twice. The following treatment was resorted to



## ITEMS OF INTEREST

by me. I made an incision from the attachment of the cheek downward to the edge of the gum line, through the canine eminence, and, with a chisel, broke through the bone. I next introduced a probe into the canine cavity, and found a piece of tooth not larger than a small pea, which I removed. I irrigated the cavity and treated the patient during the next three or four days. Within ten hours the pus stopped flowing from the sinus in the frontal bone for the first time in four years. My connection with this case I am especially anxious that you shall understand. Indeed, I did not even suspect that the tooth had anything to do with the frontal sinus trouble; I did not operate for the purpose of treating the frontal sinus. I did, however, operate with the assurance of curing the pain in the region of the malar bone, as well as the inflam-



FIG. 17.

FIG. 18.

FIG. 19.

matory condition under the eye. I am very much pleased, however, to be able to report a cure in this case, as well as to illustrate that pathological conditions will many times manifest themselves in places remote from the seat of lesion.

Fig. 16 shows the manner in which the patient's hair was arranged for the purpose of concealing the scar. Five years have passed, and the patient's condition remains normal.

Fig. 17 shows another case of necrosis. This is an anterior view. It is difficult to show the true condition. The swelling which was on the right side of the face was much marked in life, and was very hard. Compare the relation of each ear to the cheek, or with Fig. 18, and you will get a better idea of the enlargement. The patient could not move his jaws

### **Necrosis.**



far enough apart to allow the insertion of my smallest finger between his teeth.

Fig. 19 shows patient attempting to open his jaws. He was suffering intense pain. I was one of the consultants, and after obtaining a history of the case (which showed that the man received an injury to his jaws while boxing fifteen years before), and making an examination, I pronounced the case necrosis. Generally in necrotic cases we have pus, and when we have pus we have fluctuation. In this case, I was unable to get fluctuation. My theory to explain this was that the pus was probably between the ramus of the bone and the fibrous covering of the muscles. This was only a theory, and I advised operation, contrary to the opinions of some of the other gentlemen, who were

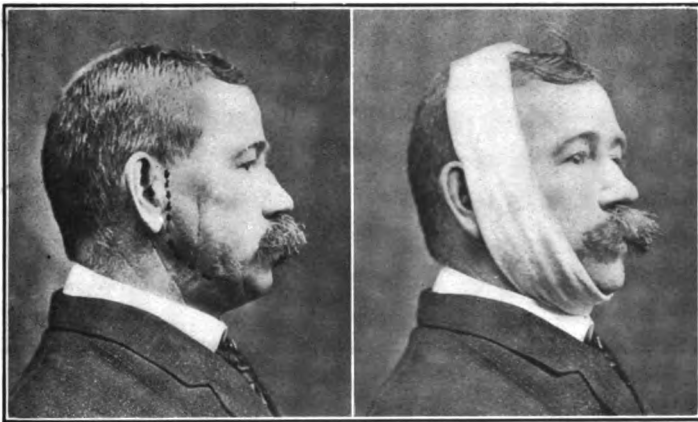


FIG. 20.

FIG. 21.

physicians and surgeons. One thought it was malignant. A pathological examination proved that it was not malignant.

An operation was performed by one of the surgeons three days later. It consisted in making an incision through the cheek as indicated in Fig. 20. The bone was curretted, treated daily for three or four weeks, and finally the patient was discharged cured, but badly disfigured. This operation was performed over a year ago, and since that time the patient has not been able to eat a meal without first bandaging his head with a towel as is shown in Fig. 21. During an ordinary meal he saturates this towel with saliva, which comes from the parotid gland through the incision, flows down the side of the cheek to the point of the chin, and finally drops on his clothing. We read a great deal about the danger of



## ITEMS OF INTEREST

cutting arteries and nerves; that is a danger, but there is a greater danger and that is the danger of cutting this gland. The incision as it is shown in the picture was not the best place which could have been selected for the exploration, which was necessary in this case. Would not one represented by the dotted lines in Fig. 20 be more consistent with our ideas of modern surgery, and serve the same purpose after the cheek had been reflected? Understand me, gentlemen, this point is not brought up for the sake of criticising this surgeon's technique, but rather to suggest what seems to me a better way from the surgical point of view.



FIG. 22.

FIG. 23.

FIG. 24.

### **Chronic Fistula.**

A child eleven years of age. Sinus of the face. Fig. 22. Pus was flowing out of this sinus during a period covering four years previous to her visit to me. Formerly, this little girl lived in Italy. While there, one of her teeth, which was abscessed, was extracted by a native dentist, who broke it during the operation. The child, however, insisted that the said dentist was a good one, because he wore a medal. The face commenced to swell directly after the tooth was extracted, and remained swollen. A few days later, the family came to this country. The medical inspector in New York sent her to a hospital on Long Island, refusing to allow her to proceed to Providence. She was treated during the voyage by the steamer's surgeon. While on Long Island, she was twice operated upon for necrosis, each time an external incision being made upon the face. She remained in this hospital from January until April, and at the end of April, her father brought her to Provi-



dence, where she was treated for several months by the local physicians. She was then taken to one of the principal hospitals, where she remained longer than a year. During this time, two or three operations were performed. At the end of this period, she came under my treatment with the conditions above stated. I introduced a probe into the sinus, and came in contact with the jaw bone, which did not appear to be very rough. On the contrary, it seemed to be healthy. Therefore I felt confident that the affected area had not been reached by the operations which had already been performed. All the teeth were present, and the inside of the mouth appeared healthy. The history of the tooth being broken by the Italian dentist, together with the age of the child, caused me to believe that the tooth extracted was a temporary tooth. Mistaking it for a permanent one, and not knowing that the root had been absorbed the operator tried to remove the supposed root, and in doing this, had injured the jaw bone. Therefore, I was willing to believe that the seat of the trouble was in the locality of the extracted tooth. The treatment which I followed afterward proved that my theory was correct. I advised the removal of the sixth year molar tooth.

In the sixth year molar tooth you see a small spiculum of bone in the bifurcation of the roots; there is an abscess surrounding this spiculum, and strange as it may appear, there was no manifestation that these conditions did exist. The tooth was vital, had never ached, and did not evidence any pain on being tapped by a steel instrument.

Fig. 24 shows the patient after being discharged cured, five weeks after the operation. After removing the tooth, I curetted the bone, and passed a probe through the socket backward, and out through the external sinus. After I made this communication, I knew that my patient would recover. I irrigated it each day, and finally discharged her cured.

**Impacted  
Third Molars.**

The next is a case of eleven years standing. This woman had been operated upon several times in the hospitals, through external incisions, for necrosis. The history of the case was as follows: About eleven years previous to her visit to me, a small swelling appeared on the external surface of the face near the angle. She visited a physician, who referred her to a dentist. Finally, acting under the advice of three dentists, she had all her teeth removed as a progressive step in the treatment of the swelling. Her condition, however, remained about the same. During the next nine years, she was treated by several different physicians. At the end of this time, the trouble began to increase and she sought medical advice again. This time she was referred to a hospital, where she submitted to an operation, and in due time was discharged



## ITEMS OF INTEREST

improved. Her condition, however, was about the same as when she entered, presenting the condition shown in Fig. 25. Examination of the inside of the mouth disclosed a small swelling in the region of the third molar, which had been diagnosticated as a tumor. I made an incision through it, reaching the bone. I then passed a probe through the opening which I made to the bone. The probe came in contact with something smooth. I told her that I thought a malformed third molar was the



FIG. 25.

exciting cause of this condition. She replied that she clearly remembered having had the wisdom teeth extracted. Regardless of her seemingly positive statement, I decided to operate along the line suggested by this diagnosis. The patient was anesthetized. I made an incision about an inch long through the tissues covering the ridge; dissected them back, and exposed the bone. Chiselling away the bone, I exposed the crown of a tooth. With a pair of extracting forceps I tried to extract this tooth, but broke the crown off in the attempt, Fig. 26. This complicated matters, so I passed a probe down by the side of the tooth, and found that its position was parallel with the bone. With a chisel I broke away the bone covering the remaining portion of the tooth (about  $1\frac{1}{2}$  inches), and exposed it. By means of an elevator, I removed the remaining section of the tooth.

Fig. 27 shows the entire tooth. I examined the other side of the jaw, and found the other third molar present but unerupted. Its position was



normal, but the tooth was very large. I extracted, and curretted socket. Within five or six weeks, I discharged this patient cured, with the sinus entirely healed. Five years have now elapsed, with no recurrence of this trouble. This tooth is shown in Fig. 28.

**Compress to Control Hemorrhage.**

Fig. 29 shows a splint made for the purpose of holding a compress to control hemorrhage. The patient came under my treatment for the purpose of having a hemorrhage checked, from the socket of a superior first molar tooth. Blood had been oozing from this socket during a period covering seven days. Her family physician, as well as her dentist,



FIG. 26.

FIG. 27.

FIG. 28.

tried to control it by packing the socket with gauze and cotton saturated with several different fluids manufactured for the purpose of controlling hemorrhage. The packing, however, after a short time, would be forced out of the socket by the blood. The most important step in controlling a hemorrhage, is, of course, constant pressure. In this case, on account of the condition of the socket, the pressure was intermittent. My treatment consisted in making a groove around the inner surface of the socket producing a kind of a circular depression all around the walls, making the inside of the socket larger than the orifice. I forced the packing into the socket, and within twenty minutes, the hemorrhage had ceased. The remaining teeth were in such condition that extraction had been advised. Her physician referred her to me some three months later to see if I would extract them. Benefiting by my previous experience, I was reasonably sure that the hemorrhage could be controlled if an appliance could be made and adjusted in such a manner as to hold the compress. I proceeded as follows: First, I procured an impression of the upper and lower teeth, adjusting models on an articulator. I then cut from the plaster model the teeth corresponding to the ones which I



## ITEMS OF INTEREST

intended to extract. I next made an appliance following the principles employed in the making of splint for a fractured jaw splint. The opening which is shown was made so that the patient could secure diet. Instead of extracting the teeth as I generally do, not paying much attention to the alveolar process, I exercised the greatest care in saving as



FIG. 29.

much of the alveolar process as I could. I extracted very slowly, removing one tooth at a time, and before extracting the next one, carefully packed the socket with gauze. I do not think it a good thing to use cotton in these cases; at least in my practice I do not use it. I prefer sterilized gauze, saturated with one of the chloride of aluminum preparations. I repeated this process until all the teeth were extracted. Then I took a piece of gauze and placed it across the ridge over the sockets, holding it in position by means of a head bandage, and adjusted the splint, or compress holder that is shown in Fig. 29. In thirty-six hours, I removed it, and later took out the compresses, removing one each day. Finally the patient made a complete recovery. Hemorrhage was controlled within sixty minutes.

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### **The Advancement of Prosthetic Dentistry within the Past Quarter-Century.**

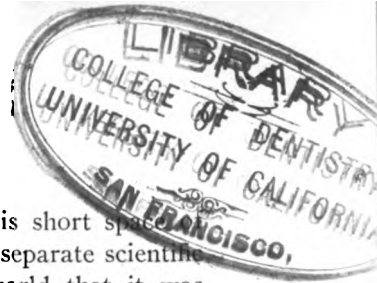
By HART J. GOSLEE, D.D.S., Chicago, Ill.

*Read before the Second District Dental Society, January, 1907.*

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To seriously contemplate the changes, developments and improvements along general lines which have occurred within the last twenty-five years, one must necessarily look with amazement upon the marvelous advancement the world has made during this epoch.





As members of a profession which has, within this short space of time, become universally accredited as being a distinctly separate scientific vocation, of a profession which has proven to the world that it was but the outgrowth of necessity, and that it has justly earned the recognition and position which it now occupies, may it not be permissible for some of us to pause at this time and consider the advancement which we, as members, know we have made—and which is generally conceded—from the broadest and most liberal view-point, lest we should become too enthusiastic to observe possible deficiencies, or opportunities for still greater achievements?

If such conservative reflection is warrantable, and I believe that it is, it seems to me that in order to arrive at some definite point of reasoning along these lines, we should, first, draw a comparison between the advancement made by this young and vigorous offspring of the parent profession of medicine, during the time specified, and the general advancement embracing the full scope of human efforts made within the same period, in order to arrive at a conclusion as to whether we have cause to be proud or elated, just satisfied, or dissatisfied.

Generally speaking, we certainly have every possible reason to point to our progress with pride, to be elated at our achievements, and to be satisfied with our acquirements; and yet, without any desire to discourage or to be pessimistic, even for the moment, I fear that we also have some reasons for being dissatisfied.

In the light of the recognition which the enlightened world now accords to dentistry, of the importance which it attaches to its mission, of the marvelous strides toward the ideal in the fields of science, hygiene, and surgery which it has made, I would not have you think that I fail to realize and appreciate the breadth and the seriousness of the statement I am impelled to make, and yet it is made, regretfully it is true, but unhesitatingly nevertheless.

**The Retrogression  
of Prosthetic  
Dentistry.**

Except for the specialties of crown and bridge-work and orthodontia, which are the progenies of prosthetic dentistry, which were born and developed during this period, and which now constitute separate and distinct specialties within themselves; except for an awakening to the correctness of the principles and the practicability of the theories of that great American genius—Bonwill—who labored so earnestly and so patiently during his life-time to make us believe him; except for the introduction of some few new forms of attachments to supporting natural teeth as a means of obtaining greater stability for partial dentures, the application of which makes it possible to cover less of the soft tissues of the mouth, and thereby do



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less injury to remaining natural teeth; except for some slight improvements in cleft-palate work, and the mechanical treatment of maxillary fractures; except for the introduction of more perfectly prepared compounds of porcelain, and for the improvements in artificial teeth, general equipment, and other products of the manufacturer, *prosthetic dentistry* in so far as it relates to the construction of artificial dentures and other forms of dental, oral, and facial restorations, which was the primitive field, and which still embraces what was formerly known as "mechanical" dentistry, has undoubtedly retrogressed rather than advanced.

By way of reaching some logical proof as to the validity of this statement, let us for a moment indulge in retrospection, and cause the curtain to be raised on the stage of dentistry a quarter of a century ago. As we view the characters of the play at that time, we find that the "mechanical" dentist is the stellar attraction; that of him is demanded, and to him is delegated the work which requires the very highest order of skill, and that, crude as his implements and perquisites are, he is nevertheless competent. The operator, the oral surgeon, the orthodontist, and the specialists in therapeutics and hygiene while playing important roles, are nevertheless subordinated to his majesty, the "mechanical" dentist.

Raise the mantle on the stage of modern dentistry and what changes do we note? We find that the acquirement of a higher order of scientific knowledge and attainment, together with the development of greater manipulative ability, and the advent of the gold and porcelain inlay, etc., etc., has in this brief space of time placed the "operative" dentist in the most conspicuous part. We find that the orthodontists and crown and bridge-work men have grown and developed so rapidly as to cause them to assume the dignity of separate and distinct specialists with a field for further and even greater development. We find all of the other specialties growing, developing and occupying positions of increased usefulness and dignity, and after some little effort we finally discover that the "mechanical" dentist—now called the *prosthetist*—has largely relegated himself to the minor and more or less unimportant part of understudy to all of the others.

Twenty-five years ago the services of this same "prosthetist" were in such demand as to entitle him to occupy the role of star in the dental firmament. To-day it is evident that he is not occupying that position. It would, therefore, seem that the skill regarded as being so essentially important then, exceeded the requirements of the present era. This is not necessarily because more work of this nature was needed then than now, but because the character of the work incident to the building of artificial dentures, and to the making of various forms of dental restora-



tions then was on a higher scientific and mechanical plane than now, and hence greater skill was demanded.

The efforts of the prosthetists then were directed largely to the manipulation of the metals, and as a result the acquirement of skill was constantly developed, instead of being retarded, as it has been, by the indiscriminate use of vegetable bases and commercial laboratories, the advent of which has in a large measure sounded the death-knell of progress and advancement along these lines.

The average dentist, then, was a better mechanical dentist than is the average dentist now, and yet look how all other departments of our profession have advanced. It sounds like a paradox, does it not?

Acknowledging that the advent and subsequent common use of the vegetable bases for artificial dentures has played an important part in this deterioration of skill, yet it is by no means alone responsible. While gutta percha and zylonite, or celluloid, of which so much was expected, and for which so much was claimed, have practically proven failures, and been abandoned, "vulcanite" still occupies a place of usefulness which makes it a valuable and practically indispensable adjunct. Its use as a means of affording attachment of teeth to metal bases embraces its greatest field of usefulness, however, because of its pathological incompatibility with the soft tissues of the mouth, due mainly to its physical property of non-conductivity. Its introduction has also resulted in the abandonment of the use of single gum teeth attached to the base by soldering—a type of construction which was formerly in common use—and therefore in the achievement of far more hygienic results in the application of gold and other metals to the construction of artificial dentures.

During this era it has also caused the utilization of *aluminum* as a base to be made practicable, and to become regarded as occupying a great range of usefulness for such purposes, thereby affording a possible stepping-stone in the upbuilding of this class of work from the slough of degeneracy.

It will therefore be observed that the judicious and scientific use of vulcanite has not necessarily been the one important factor it is commonly and generally considered to have been in bringing about this condition—this dearth of skill—in such directions, for indeed in this connection let me say that it requires just as much skill and art to build a vulcanite denture *properly*, as it does to construct one of metal.

**Continuous  
Gum.**

If this dearth of skill is questioned, let me say that continuous gum work, for instance, was made even better, and certainly more frequently than now; and yet, during all these years, it has been, and



## ITEMS OF INTEREST

is still to be regarded, as the typically ideal denture ; and, furthermore, that better and in proportion more metal dentures, on the whole, and as an average, were made then than are being made now.

If vulcanite is not alone responsible for such retrogression, then to what can it be attributed? What part has the manufacturer of dental supplies, and the commercial dental laboratory, a product of the past twenty-five years played, and are not dental educational institutions in some way responsible?

While it is true that the manufacturers have made such improvements in their products as to materially lessen the labor, and, perhaps, diminish to some extent the actual skill formerly required, still since the manufacturer can not also be the artist it would seem that these improvements in methods, in porcelain teeth and bodies, in the preparation of metals and alloys, and in instruments and facilities, should tend rather to increase than to diminish the products of skill resultant from their introduction.

### **College and Laboratory Blamed.**

It is therefore my opinion that both of the latter institutions—the colleges and the commercial laboratories—are entirely to blame, and that the colleges are primarily so because of being so largely responsible for the advent of the laboratories.

Of the numerous and varied subjects which are now included in the curriculum of the modern dental college, that of prosthetic dentistry *per se* enjoys a unique distinction, for the reason that it necessarily embraces a study of the metals, their physical properties, and their scientific manipulation, and therefore it is recognized as being the foundation of early dentistry, and the very basis of modern dentistry, and yet it is undoubtedly the most neglected phase of advanced dental education.

With no pessimistic views, or over-zealous enthusiasm along circumscribed lines, but, on the contrary, with every desire to acknowledge and show just and full appreciation of the wonderful progress made in dental education throughout the world in the last quarter century, still let us again pause and seriously study the problem as to whether the practical departments have really advanced in the same ratio as have the scientific departments.

While we do not fail to recognize and appreciate the necessity for higher scientific attainments, and for a broad and liberal education in all of the more or less closely allied subjects now embraced in the dental curriculum, let me ask, has the advancement made resulted in the production of better dentists?

Psychologically and theoretically, this question may be answered in the affirmative. The graduates of to-day are more highly educated ;



their training has been along broader and on more liberal lines; they are constantly being better prepared to enter into the activities of social and civic affairs, and thereby aid in raising the standard of the profession; in fact, they are in every way better *men*, as a whole, but are they better dentists and are they better fitted to engage in and successfully fulfill their mission?

How many of them are fundamentally equipped to display that remarkable evidence of skill which resulted in the accomplishment of Evans, in prolonging the life of the prince who afterward became the emperor of France; how many Bonwills, Wildmans, Closes, Moffetts, Morrisons, and Essigs have we now, and how many Kingsleys, Haskells, Warrington Evanses, and Taggarts are growing up in our midst?

The practice of dentistry demands peculiar and somewhat versatile accomplishments. It demands a broad and liberal education, and that degree of culture which results therefrom, under favorable environments, but it also demands an artistic temperament and the proper mechanical training. These latter may, or may not, be present as a natural heritage, but are nevertheless capable of development to a greater or less extent in almost every one.

And here is where the colleges are weak, and why they should be censured, for, while prosthetics is undoubtedly the most difficult to teach, because of the fact that no general system obtains, no unification of principles prevails, and no really practical text-books exist; it is nevertheless fundamentally the most important, and, therefore, as is too frequently the case, can not be regarded in the light of indifference, delegated to inexperienced teachers, nor taught in a perfunctory manner.

If more attention had been given to the teaching of this subject in the past quarter century, and if a greater degree of appreciation of the importance of a broad knowledge of the physical characteristics of the metals, and of the value of a proper training in their scientific application and manipulation had obtained, it is difficult to calculate the increased amount of skill which would now be possessed by the average dentist, and it is safe to say that the mouths of the populace of the world would contain more metal and fewer vulcanite dentures, and that greater health and longevity would have thereby resulted.

To this dearth of exercise of scientific skill in these lines can be attributed the advent and growing popularity of the commercial laboratories. Such institutions at best can only be regarded in the light of being a menace to the progress of the profession in its entirety, and yet *they* are not altogether responsible for this because they, also, are the outgrowth of necessity—a necessity, however, occasioned only by lack of



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confidence and gross incompetency on the part of the profession, together with an absence of high scientific ideals—and when we realize this, and properly educate ourselves first, and then our students if we be teachers, they will die a natural death, and dentistry, as an art and a science, will be placed on a higher plane.

In this connection I can not refrain from expressing the view that in my opinion no practitioner is justly entitled to aspire to the sublime confidence of his clientele, nor to exact a large or even moderately good remuneration in the way of fees, who employs ready-made and easily adapted products which require but little, if any, skill, and which afford results that must of necessity be of doubtful character.

Indeed, one of the most certain stepping-stones to that degree of success—both moral and financial—to which every honest man aspires, is to so qualify one's self as to be capable of doing that which he undertakes, and doing it well; and in proportion as he so directs his efforts and energies, in just the same proportion will his success be insured.

Even though the tendency to specialize is growing, and granting that such growth is practicable, that the age in which we live seems to demand it, and that it should therefore be encouraged, yet he who lays the broadest foundation is the better prepared to erect the most substantial superstructure in whatever special direction he may choose.

### **Dynamics of Crown and Bridge-work.**

In stating that “mechanical” or *prosthetic* dentistry has retrograded, you will note that I have made an exception as applied particularly to crown and bridge-work, and emphasized the fact that the growth and advancement of this separate specialty has been nothing short of phenomenal. And yet, gentlemen, may I not be permitted to call your attention to the fact that, even in this field, where so many bright minds have contributed toward progress, there has been a lack of co-operation between the workers, and therefore an absence of that classification of requirements, methods and results, without which the whole application of this class of work is still in a more or less empirical stage? This, however, is to be attributed largely to the fact that little or no attention has been given to what may be termed the dynamics of the art, or to the proper classification of conditions and requirements.

For example, there are many ways of making crowns, and many ways of making bridges, and a number of them are good ways. Nevertheless it follows that if conditions in mouths were always similar, we could soon decide upon the one best way of making either a crown or a bridge. But conditions, and therefore the requirements, vary, and so we must have various methods. Thus the scientific selection becomes some-



what complex, since what may be the very best method in one instance, may prove an utter failure when applied to another, or without judgment.

The two primary factors in crown and bridge construction are *beauty* and *usefulness*. Beauty depends upon the art displayed in defying detection, and usefulness upon the ability of the finished piece to serve all purposes of mastication without being destroyed or fractured by the force of stress.

It therefore is always a problem in choosing a method, to select that one which will answer these two demands in the highest degree, and it is my view that when there may be a conflict, choice must be given to that mode which promises the most usefulness; yet exactly the reverse is the common rule. Indeed, notwithstanding a deep sense of appreciation of the esthetic, too many operators make cosmetics their chief aim, and only learn their error when that which was at first a splendid looking structure returns broken or mutilated.

As an example, again, it is not an uncommon occurrence to find pieces of bridge-work *made entirely of gold* torn away from one or the other, or both, of their abutments as a result of stress. In such instances the operator doubtless made the piece entirely of metal thinking that he would thereby sacrifice cosmetics for usefulness, which in principle was correct, yet because of a failure to insure sufficient strength by properly uniting the dummies to the abutments, the entire structure proves a failure, and, only because the dynamic requirements had been overlooked.

It will therefore be observed that there is still room for even further progress along the already well advanced lines of this particular specialty, and also that there is much yet to be learned before empiricism can be removed and the importance of dynamics better appreciated.

After thus indulging my vagaries by calling your attention to further opportunities for promoting even greater growth and development of this class of work in particular, let me now return to my original premise, and, in conclusion, again remind you of the strange and singular phenomena that in the past quarter century all departments of dentistry have advanced with wondrous rapidity *save one*; and that this one embraces the manipulation of metals and the construction of artificial dentures, and is therefore the one which is the very basis of all dentistry; and yet, notwithstanding its great importance, it has assuredly retrogressed.





### **Second District Dental Society, January Meeting.]**

The annual meeting of the Second District Dental Society was held in the Kings County Medical Society rooms, Brooklyn, January 14, 1907. The essayist of the evening was Dr. Hart J. Goslee of Chicago, who read a paper entitled "The Advancement of Prosthetic Dentistry Within the Past Quarter Century," discussion being opened by Dr. W. H. Taggart of Chicago. The paper was received with considerable applause and the following discussion ensued.

#### **Discussion of Dr. Goslee's Paper.**

**Dr. W. H. Taggart, Chicago.** I am very much pleased to-night to be with you and talk on Dr. Goslee's paper. I think this is Dr. Goslee's masterpiece.

As his paper is not of a technical nature, I have been a very poor one to choose to open the discussion. My line of work is more on the technical side of dentistry. I have to do more with the practical methods.

Some points I wish to talk on. They are principally on the lines of prosthetic dentistry, as our average dentist thinks that it is degrading to be called a mechanical dentist. If I were a teacher in a dental college teaching prosthetic dentistry, I would take the raw material that came to me in the shape of students, and make a mechanical dentist of every one of them. And I would also make artistic mechanical dentists of them. The idea of throwing the students' work together, without any attention to the artistic side of it, is a mistake. I would make the boys take a piece of steel and work on it and bring it down to a finish so fine that they



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could see their faces in it. The line of demarcation between high-grade mechanics and art is closely drawn. During the World's Fair, in 1893, the Coe Company had a large cylinder of steel displayed. It was most beautifully polished and without a blemish. So highly polished and so beautiful that it was to me the most artistic piece at the Fair. It had a placard on it saying "Hands off," but so great a fascination did it possess for me that I constantly returned to admire it, and when I could do so unobserved, I would reach out and touch it with my finger. Such a piece of work proves its maker an artist. Teaching students to do this fine kind of mechanical work is to make artists of them. Men starting out from college to do mechanical work must not allow themselves to fall into the mistake of thinking it is degrading work.

When you make a plate for the mother of a family, it only takes her twenty-four hours to find out whether you are a good dentist, though it may take her children about ten years to find out that you are a fool of a dentist. (Applause and laughter.)

In every small town there always is a woman who will try every dentist and have each of them make a plate until she can get one with "a good suckage." (Applause and laughter.) If you are the fortunate individual your reward will come within twenty-four hours. She will tell her neighbors and friends what a good dentist you are, and these will believe it, too, on account of the better talking of the old lady with her new teeth. This is the kind of advertising you want. The filling of teeth is, with me, a secondary consideration. I have followed all branches of dentistry. It requires ten times the skill to do proper prosthetic work that it does to fill teeth.

The paper struck a note full of meaning to me.

**Dr. R. M. Sanger,**  
**East Orange.** As a teacher I have felt that we have been occupying a false position. The student comes to us only partly prepared for the work before him. He has a strong bias against mechanical dentistry from the first. Yet I believe the fault lies with the dentists and not with the colleges. It is a lack of proper text-books that we in the colleges have to combat. I hope that good books will be prepared which will lead to more direct and better teaching. In teaching I lay stress on students becoming perfect or imperfect dentists according to the way they take hold of all branches of the work. Impress the student that thorough preparation is necessary to become a thorough dentist. I hope this paper will be a starting point for the uplifting of the profession along this line of mechanical work and more thorough preparation.



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**Dr. C. E. Weeks,**  
**Minneapolis.**

I agree with the first speaker that this paper is Dr. Goslee's masterpiece. It is not too pessimistic. I was formerly associated with a man who thought that the prosthetic part of dentistry must be given its proper place in the curriculum. I agree with others that there is a lack of harmony on the part of teachers throughout the country, but efforts are being made to establish better conditions; yet those efforts are sporadic. I am reminded of a paper I heard years ago belittling the work of the operative dentist. The writer called it "plugging holes." Some man got up and said that while we might admit that this is true, a necessity for plugging holes would exist for years to come, and every dentist should know how to plug holes perfectly. I believe in the advisability of establishing a school where all men who might desire to become laboratory assistants could be taught prosthetic dentistry properly.

**Dr. John I. Hart,**  
**New York.**

I think the trouble to-day is that we are trying to bring a body of geniuses into the profession; trying to do too much. The fact that we have a body of men in college without sufficient education is the fault of conditions in years gone by. Formerly the majority of men that entered the profession had years of training in dental offices before going into college, which we can hardly expect of present students without previous manual training requirements. The task will be easier when more training is required. At present we have more raw material to work with. Three years is too short a time in which to train a man properly. We will sooner or later all break up into specialties. Students will show a particular bent for some branch and they will need to be trained for that particular branch; we need not try to make men perfect in all lines. If three years of training prove to be enough, then find out the bent of the individual and train along that line, and do not hope to make the perfect individual Dr. Goslee wants. It is now impossible to properly train a man in all fields as in the past.

**Dr. H. A. Kelley,**  
**Maine.**

We have heard from the West and now I come from the East. I am very little interested at the present time in the subject of mechanical dentistry. Formerly I was very much interested in it, and I feel it has made me a good workman along operative lines. I am now having my first experience with an assistant. My young man is a product of the modern college. He is more interested in the mechanical part than in operative dentistry. We who were trained in offices can not conceive that we ever knew as little as these young men from college know. This school must be teaching very little to turn out such a man as I have.



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**Dr. M. E. Rhein,**  
**New York.**

I want to add my tribute to the paper. I want to emphasize everything said in its favor. Nothing in the paper is exaggerated. I feel absolutely in favor of the young men of the day on this subject. The fault of this condition is not due to the institutions in the slightest degree. No college of itself ever turned out a great dentist. The day a man enters into the practice of dentistry after college is the day when his real education begins, no matter in what line. The colleges have absolutely no bearing on this subject. I am in hearty accord with what the essayist has said. No man after twenty-five years in practice can gainsay facts that stare us in the face every day. Thirty-five to forty years ago prosthetic dentistry was in its prime in this country. During the past twenty-five years the pendulum has slowly but surely been going backward and backward. Dr. Goslee has stated the reason. It lies among the members of the profession. It exists in every dental office where they cater to patients. The true cause is simply the desire for the almighty dollar which pervades this country. There are very few men in existence who are Taggarts, who have the ability to master all branches of dentistry to the height of perfection, and carry into practical work the same exactness and care for their patient's welfare. The man who thinks he can nowadays reach high developments in every branch is in error. The public will be better served by men devoting their time principally to the part of the work they love best. You must love your work. No unpleasant or uncongenial line of work should be followed. Young men should learn this.

The real cause back of this condition is the dental laboratory. We have brought about the development of men for this purpose. I think this an error in that it has kept down the cause of prosthetic dentistry for the last twenty-five years. It is the reason for the poor class of work. The dental laboratory came to supply a demand on the part of the dentist who wanted to get all the profits himself. This type of dentist either sends the work out or employs a man at a few dollars per week in his laboratory.

If I can read between the lines I believe my views coincide with the essayist's. It is maligning the young dentists to say that this degradation is due to them. If a young man has a love for his work and associates himself with an older practitioner in an office where he is placed on equal terms, he will turn out the right kind of work. In this position I leave my plea for the young man as not being to blame for the condition, but will say it is due entirely to the methods on which dentistry is conducted; unethical and unprofessional in this particular sphere.



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I do not know whether to agree with Dr. Goslee or not. I think every man bases his convictions on his first experience in dentistry. I have come to the conclusion that it is your first steps that guide your practice in after life. I went with a man, Dr. Lounsbury of New York, who first conveyed to his students the principle that they must never take out a tooth if they could save it. I have always gone on that principle.

Now as to the paper. Take a man who does good work in many lines. He is a good gold plate worker, but he has not the time to give to it.

Personally I have to see a number of patients each day, more than was formerly the case, as expenses are heavier and I have to work harder. I love mechanical work and would like to do that altogether, but I am fully occupied with operative work. If I give the work to the mechanical man, I always see that it is properly done, and that it fits and is finished perfectly, etc.

Dr. Rhein said the pendulum had almost come to a standstill. On the other hand to-morrow night we expect to hear from one of the greatest men in this country about a method of restoring teeth to their normal form, making them as useful as originally, and all from the purely mechanical standpoint.

We are all coming back to prosthetic dentistry. It does not matter so much who does the work, you yourself, or the laboratory men, provided that it is properly done. Operative dentistry has in my opinion made the least progress, unless progress means the stuffing of a hole full of something. There has been no real effort to restore from an artistic standpoint the lost portion of a tooth.

The introduction of mechanical laboratories is a big mistake, but there will come a period when this branch will be put on a proper basis. Dentistry will be divided up. No one man can begin to digest and make use of all the good things that are offered to us.

I take my place with the young man. He is not the poor workman in mechanical dentistry that some would have us believe. He has more time than the older practitioner when he starts out and should appreciate that it is extremely important to know mechanical dentistry. He should never turn out a piece of work from his office that has not had the benefit of his own supervision at all stages. How many men in this room can made a good metal plate? Not ten of them.





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**Dr. R. Ottolengui.** Dr. Goslee said that his paper is pessimistic. It is pessimistic language from an optimistic brain. Its effect will be like applying a hatchet to the dead

branches of a tree.

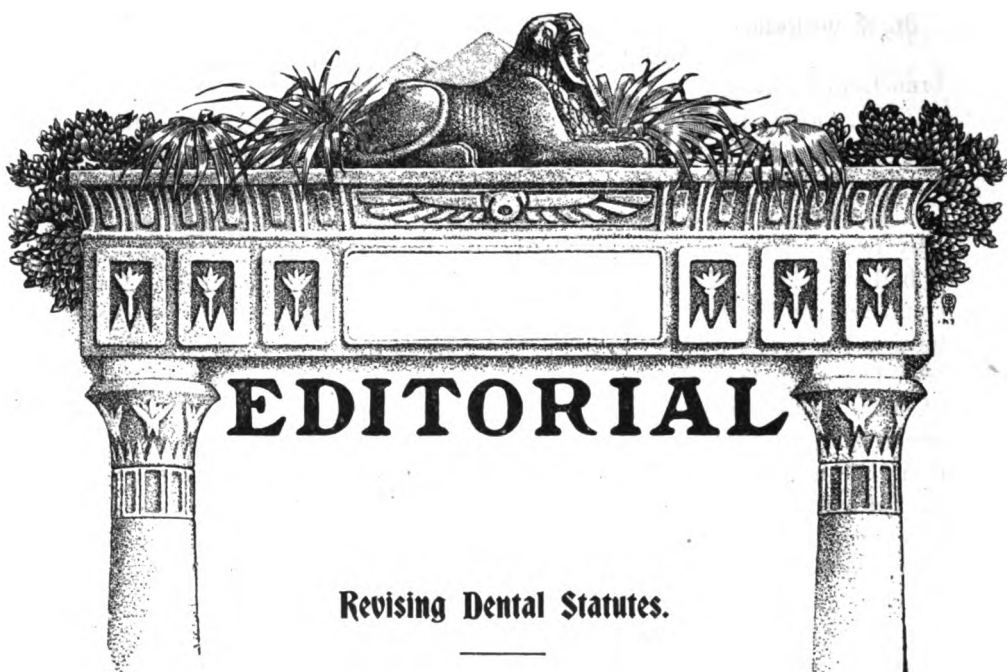
Dr. Goslee is a teacher of prosthesis, and is not satisfied with the conditions he finds, yet he is hoping for better things. He wants to plant seeds which will bear better fruit in the future.

Dr. Taggart spoke about a steel cylinder, but he did not make it clear why this piece of steel was so beautiful. It was not wonderful because it had the high polish, but because it was so perfect in all parts that it could receive this high polish. The fault of our inlay system is that we have not dared to polish our inlays for fear of exposing defects. I have seen Dr. Taggart's inlays. They are as artistically perfect as that piece of steel. This is a prosthetic method of doing what an operative dentist never has produced: a perfectly solid gold filling. This is an optimistic thought for Dr. Goslee to take back with him. Men must go into their laboratories more in order to do better work in their offices. Our aim heretofore has been how much we could get out of it instead of how well we could do the work. Our porcelain bridges in the past have been built on very slight foundations. Dr. Goslee has taught us regarding their construction. There are definite laws of dynamics in bridge-work. They may be made both too strong or too weak. There is a field for study.

(In the absence of the regular stenographer the above report was taken in shorthand by Dr. Voelker, one of the members, but unfortunately at this point his paper gave out, and we are unable to give a report of the remarks made by Drs. Tracy and Goldsmith of New York, and the closing discussion by Dr. Goslee.)







### Revising Dental Statutes.

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Periodically we hear a demand for unification of dental statutes, but no concerted effort toward this end has apparently been seriously undertaken. The need of unification grows out of the fact that there are scarcely two State dental laws that bear any close resemblance with one another. If all the laws of all the States could be collected, and studied, and from this examination if a statute could be framed which would at least cover such requirements as might well be common to all States, we should at least have a fair foundation for unification, even though in other respects the laws might differ to meet local conditions.

For example, the number of examiners which should constitute a board; the manner of their selection and appointment; the duration of their terms of office; methods of examining candidates who have never been in practice; methods of examining practitioners licensed in other States; perhaps the number of examinations per annum: these and other features might well be common to all State dental laws. In regard to educational requirements there would probably for many years necessarily be a difference of opinion and consequently a difference in the laws





would be unavoidable. But even these varying educational standards might well be classified, and become known as Educational Standards, A, B, and C, each State adopting such standards as its lawmakers might decide to be best for its own citizens. In this way even the differences in the laws would become similarities, and, moreover real interchange of license would easily become established between States having identical methods of granting licenses.

But our people seem mad with the notion that each State must be a separate sovereignty, and to this end it almost seems as though special effort is made to couch laws in language as different as possible from that used in similar statutes in other States. All this, of course, tends to defeat the end, which all, nevertheless, admit to be desirable.

**New Law  
Proposed in  
New Jersey.**

In New Jersey it appears that the existing statute contains certain features which have not proven entirely satisfactory, and a committee was appointed to draft a proper modification of the present law. This committee undoubtedly labored hard and conscientiously, yet the product was an entirely new statute, which not only totally differs from the law as it stands, but is quite unlike anything to be found in any other State. A unique feature is the creation of a "Dental Council," to include the "Secretary of State, the President of the State Board of Health, the State Superintendent of Public Instruction, the President of the State Dental Society, and the Secretary of the Board of Dental Examiners."

To this Dental Council is relegated the power to grant licenses, to persons recommended to them by a dental examining board after examination, and to dentists holding licenses from other States under stated conditions.

It has been explained that the idea of a Dental Council is copied from the Board of Regents of the State of New York, and this leads us to the point of the present argument. Had this committee really formulated a statute creating a Board of Regents exactly similar to the Regents of the metropolitan State, they would at least have been advocating a step toward unification. But while the New Jersey idea may be a copy of the New York law, the resemblance is very taint. In the first place the New York Regents governs all educational matters,



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whereas the Dental Council herein provided is purely dental in its scope. But the chief dissimilarity lies in the fact that the New York Regents is absolutely non-political, and is composed exclusively of men of high public standing, men, moreover, chosen especially because of their fitness for the work intrusted to them. On the contrary, of the members of the Dental Council, in the proposed Jersey law, there would be but one really chosen for the work, viz.: the secretary of the Board of Dental Examiners. The President of the State Dental Society would likely be a suitable man as would, perhaps, the Superintendent of Public Instruction; but the others would assuredly be men selected for their respective offices regardless of their ability to fill a place in the Dental Council.

Again, this Dental Council would constantly change its personnel, whereas the Regents of New York is a practically constant body, its members serving so long that efficiency is assured.

The proposed act entirely destroys the present powers of the Dental Examining Board, making of it a body whose single duty would be to examine candidates for license. It is far from certain that this is a bad idea. Such is practically the status of both the dental and the medical boards of examiners in New York. But unless the power withdrawn from the Board of Examiners can be given into the care of a high grade board similar to the Regents of New York, no alteration of present conditions seems logically advantageous.

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### Cocaine Formula Corrected.

By a mistake in the report of Dr. Vaughan's paper in the last issue, the formula given for a cocaine injection solution is erroneous and would produce a dangerous dose. The following has been supplied by Dr. Vaughan as correct:

|                              |          |
|------------------------------|----------|
| Cocaine hydrochloratis ..... | gr. v    |
| Adrenalin chloridi .....     | m xiv    |
| Sodii chloridi .....         | gr. viii |
| Phenol .....                 | m iiss   |
| Aquæ qs. ad .....            | oz. i    |





### **Dr. Wm. C. Derby.**

Dr. William C. Derby, for 56 years one of the most prominent citizens of Ellenville, N. Y., died at his residence after a short illness. With the exception of two or three periods of sickness in the last few years, Dr. Derby enjoyed robust health through all his years and was always in fine physical condition.

Deceased was a descendant of the Derby family of Orange county. Isaac Derby, his grandfather, was born in the county, and owned a large tract of land within the limits of the city of Newburgh. Of his family of four children, Daniel C., the father of Dr. Derby, was born at Montgomery, May 22, 1799. He spent his youth there and married Miss Julia Carpenter, of Wallkill township, she being of Puritan stock, the first Carpenter having come over in the Mayflower.

Her father and grandfather, both of the name of William, were born in Orange county. Daniel C. and wife settled on a farm in Wallkill township and raised a family of seven children, William C., Mary, who married Dr. Theodore Davenport, John, Abigail, Daniel D., and Kate, who married Henry Knox, of Kansas.

Dr. Derby was born June 6, 1828. He attended school in the district and remained at home until March, 1851, when he came to Ellenville and studied dentistry and soon after started in his profession, which he has practiced continuously since, occupying offices in his own building for 54 years:

On December 28, 1853, he married Elizabeth, daughter of the late Thomas and Mary Smart, of Ellenville. To the union there were born five children, of whom two, Dr. Frank C. Derby, dentist, of New York, and Dr. Harry C. Derby, dentist, of Ellenville, survive, the latter having been, for a number of years, associated with his father in business. Dr. Derby was a genial gentleman, with many friends. He was a lifelong Democrat, taking an active part in party and public affairs. He had been town clerk, trustee and president of the village, and for two terms—1881, 1882—was supervisor of the town. In the purchase of the Terwilliger House from Eli D. Terwilliger, in 1873, he was associated in the ownership with Abram Constable.

Mrs. Derby died on the 15th of October, 1876.

Dr. Derby was a charter member of Wawarsing Lodge, F. and A. M.





### **Dr. C. S. Reichert.**

Charles Scott Reichert was born in Tipton, Iowa, November 30, 1876, son of Mr. and Mrs. J. H. Reichert. He received the training afforded by the public schools of Tipton, graduating from the high school, and for the following two years was in business with the lumber firm of Reichert & Geller.

Then came a year spent in Cedar Rapids business college and at the outbreak of the Spanish War he enlisted as a member of Co. F, 49th Iowa Vol. Infantry. While serving with his regiment in Cuba he was seized with the fever which in the end was the cause of his death. After a third relapse on the island he was given a furlough and came home to be confined to his bed for a number of months. With the return of strength and comparative better health, Mr. Reichert again took up his studies, receiving one year's training at the State University Dental School, and two years at Northwestern Dental School, Chicago, graduating from the last named institution.

Mr. Reichert's stay in Cuba had impressed him with the opportunity for a business opening and he began the practice of his profession in Havana, the first American dentist to be granted a license. After a few weeks of work, however, a second attack of fever compelled his return home, and again he was confined to a sick bed for many months.

From this time on Dr. Reichert has made a brave determined fight for life, periods of health alternating with weeks and months of illness until the end came.

The funeral services were singularly impressive and beautiful and the exceptional floral offering and the attendance of the friends gave evidence of the high regard in which Dr. Reichert was held. The services were in charge of J. Kent Rizer, the music being furnished from the Choral Club through their male quartet.

Company F, 49th Iowa Infantry, attended in a body, one detail acting as pallbearers and a second standing at attention by the casket during the service. Interment was made in the Masonic Cemetery and at the close of the commitment service "taps" were sounded by Bugler Curry.

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### **Mr. Andrew J. Smith.**

It is with deep regret that the dentists and the dental trade throughout the country learn of the death of Andrew J. Smith. Mr. Smith passed away after a short illness, on November 11, 1906, at his residence at Providence, R. I.





He was born in Natick, R. I., August 9, 1832. After the usual public school education of his day, he entered upon his apprenticeship as an apothecary, and at the age of 21, set up for himself in the drug business. For years he enjoyed the distinction of being one of the most popular druggists in the city.

Early in his business career, he foresaw the importance of the dental supply business and made it a department of his store.

His business in this department increased so rapidly, that about fifteen years ago, he gave up the drug business and turned his entire attention to the dental trade.

He was always in sympathy with the needs of the dental profession, and many a prosperous dentist has gladly acknowledged his gratitude for the advice and financial aid rendered him at the start by Mr. Smith.

In 1864, he married Mary A., daughter of the late E. P. Knowles, mayor of Providence, by whom he had four children. They, with the widow, survive him. His love of home life was exhibited in a marked degree. He belonged to no secret societies and never sought political preferment. His chief recreation was in outdoor life, yachting, hunting, and fishing. He was a member of the Rhode Island Yacht Club. His disposition at home or abroad was ever sunny and genial, and his demeanor toward his associates was always marked with kindness and cordiality.

His funeral was attended by a large number of prominent dentists and representatives of the dental trade. Six of the leading dentists of the city were pallbearers, and the interment was in Warwick, R. I., in the countryside which he always loved.







# SOCIETY ANNOUNCEMENTS

## **National Society Meetings.**

• National Association of Dental Examiners,  
Minneapolis, Minn., July 26, 27, 28.

National Dental Association, Minneapolis,  
Minn., July 30.

Jamestown Dental Convention, Norfolk, Va.,  
Sept. 10, 11, 12.

## **State Society Meetings.**

- Alabama Dental Association, Birmingham, May 14, 15, 16, 17.
- Arkansas State Dental Association, Eureka Springs, May 29, 30, 31
- Connecticut State Dental Association, New London, April 16, 17.
- Colorado State Dental Society, Colorado Springs, June 20, 21, 22.
- Florida State Dental Society, Atlantic Beach, June 6, 7, 8.
- Georgia State Dental Society, Atlanta, May 7, 8, 9, 10.
- Illinois State Dental Society, Quincy, May 14, 15, 16, 17.
- Indiana State Dental Association, Indianapolis, June 11, 12, 13.
- Iowa State Dental Society, Cedar Rapids, May 7, 8, 9.
- Kentucky State Dental Association, Louisville, May 20, 21, 22.
- Maine Dental Society, July 16.
- Minnesota State Dental Association, Minneapolis, July 30, Aug. 3.
- Mississippi Dental Association, Meridian, May 28, 29, 30.
- Montana State Dental Society, Helena, April 12, 13.
- Nebraska State Dental Society, Lincoln, May 21, 22, 23.
- New Jersey State Dental Society, Asbury Park, July 17, 18, 19.
- New York State Dental Society, Albany, May 10, 11.
- Oregon State Dental Association, Portland, May 9, 10, 11.
- South Carolina State Dental Association, Anderson.
- South Dakota Dental Society, Sioux Falls, June 5, 6, 7.
- Tennessee State Dental Association, Knoxville, July 9, 10, 11.
- Texas State Dental Association, San Antonio, June 13, 14, 15.
- Vermont State Dental Society, Burlington, May 15.
- Virginia State Dental Association, Jamestown, Sept. 10, 11, 12.
- Wisconsin State Dental Society, La Crosse, July 16, 17, 18.





## National Dental Association Clinic.

The work of arranging the clinical operations, table clinics, etc., for the coming N. D. A. meeting is progressing. I had hopes that I might at this time publish the names of the District and State Chairmen, but that is impossible. The fearful floods, and the great amount of snow which has fallen have prevented the usual mail facilities. It must be this, for the letters sent December 20, 1906, in many cases, still remain unanswered.

Plans have been made, which, if followed, should result in bringing to the meeting men from all the States in the Union and Canada.

As soon as possible each State will be provided with a local chairman who will make every effort to obtain such an array of talent that the Clinic of the National Dental Association, which is to be held at Minneapolis on July 31 and August 1, will be the best ever arranged for the consideration of the members.

The work of the Clinic has been divided.

Dr. W. N. Murray, Medical Block, Minneapolis, has been appointed chairman of the Inlay Section. Dr. Murray is arranging special features for his department.

Dr. W. R. Clack, of Clear Lake, Iowa, secretary of the Clinic Section, has the territory west of the Mississippi River entirely under his jurisdiction.

I have the rest of the United States and Eastern Canada under my care.

The Executive Council has invited the members and friends of the Black Club to operate on one of the days of the clinic. The invitation will be extended to them, and beyond a doubt it will be accepted.

The fact that I have been chosen Chairman of the Clinic Section, does not mean that the clinic is to be a Black Club Clinic. It simply means this, that I hereby extend a most cordial invitation to all reputable dentists in the United States and Canada to come, meet with us, and if you have anything new to introduce in methods of filling teeth, or some new appliance you wish to demonstrate at a table clinic, come to us and be welcome. Every chance will be given all to assist in making this a most memorable clinic. (I am not in position to invite to the Clinic those who have patented instruments or methods to sell, their place is the Exhibit Room.)

I would like every man who has anything which he feels is of value to others to know, that if he will come and demonstrate it, there is room on the programme, and at the meeting for him.

I am depending upon the District and State Chairmen to assist me. One man may do much, but many men who are willing to work and do



## ITEMS OF INTEREST

work, are able to do much more. I am bending every energy to make this Clinic the best which the National has ever held. More no man is able to do.

The Dental Journals for July will contain the Clinical Programme.

Those who wish their names to appear as operators or table clinicians must have them in my hands by June 1st.

On July 1st, the N. D. A. programme goes to the printer.

E. K. WEDELSTAEDT,  
Chairman Clinic Section.

N. Y. Life Building, St. Paul, Minn.  
February 14, 1907.

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### National Association of Dental Faculties.

The annual meeting of the National Association of Dental Faculties will be held in Minneapolis, Minn., commencing at 2 P. M., Friday, July 26, 1907.

The Executive Committee will meet at 10 A. M. the same day. The West Hotel has been selected as headquarters and place of meeting. Hotel rates as published in the notices of the meeting of National Examiners will prevail.

Very truly yours,

H. B. TILESTON,  
Chairman Executive Committee.

B. HOLLY SMITH,  
Secretary Executive Committee,  
1007 Madison Ave., Baltimore, Md.

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### Indiana State Dental Association.

The Forty-ninth Annual Meeting of the Indiana State Dental Association will be held at the Claypool Hotel, Indianapolis, June 11, 12, 13, 1907. The Executive Committee has arranged an unusually interesting programme for this meeting. A cordial invitation is extended to the profession to be present.

CARL D. LUCAS, Secretary.

Indianapolis.





## **National Association of Dental Examiners.**

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The National Association of Dental Examiners will hold their Twenty-fifth Annual Meeting in Minneapolis, Minn., beginning Friday, July 26, and continue through the 27th and 29th.

Accommodations have been secured at the leading hotel of Minneapolis, "The West Hotel." Rates as follows: Room without bath \$1.00 per day for each person occupying the room. Room with bath, \$2.00 per day for one person and \$1.50 per day for each additional person in room. Hotel on European plan. Any room in the hotel capable of accommodating two people. Telephone in each room; hot and cold water. A large attendance of delegates is earnestly requested. Committee on Colleges, Joint Conference Committee, Tabulation of Examining Boards reports, the Committee for promoting a system of credits and uniformity of Examinations will all give exceedingly interesting reports, valuable to all the members of the Association. Railroad rates will be announced later.

For information apply to Charles A. Meeker, D.D.S., secretary and treasurer, 29 Fulton Street, Newark, N. J.

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## **New Jersey State Dental Society.**

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The Thirty-seventh Annual Meeting of the New Jersey State Dental Society, will be held in the Auditorium at Asbury Park, N. J., commencing 10 A. M., July 17, and continuing through the 18th and 19th. The headquarters will be at the Hotel Columbia with the rates of \$3.50 and \$4.00 per day, and all reservations must be made before July 1st. Prominent dentists have signified their intention of reading papers, and the clinics will all be of a new and novel nature.

Clinic Committee in charge of Charles H. Dilts, D.D.S., Trenton, N. J.

Exhibit Committee in charge of Walter Woolsey, D.D.S., Elizabeth, N. J.

Programmes will be out June 15th. Last year over 800 dentists registered in attendance. The Auditorium where the meeting is held is the largest and best adapted building on the Jersey Coast. Cut off the week of July 15th, and be with us.

CHARLES A. MEEKER, D.D.S., Secretary.

29 Fulton Street, Newark, N. J.





## **New Jersey State Board of Registration and Examination in Dentistry.**

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The New Jersey State Board of Registration and Examination will hold its Semi-annual Meeting beginning Monday, July 8, 9, 10, and 11, in the Assembly Chamber of the State House at Trenton, N. J.

For information kindly apply to the secretary.

A photograph of the applicant must be filed with the application.

Practical and theoretical work completed at the session.

CHARLES A. MEEKER, D.D.S.,

Secretary of Dental Commission.

29 Fulton Street, Newark, N. J.

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## **The New York Prosthetic Dental Society.**

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The First Annual meeting of this Society will be held on Monday and Tuesday, April 22 and 23, at the Murray Hill Lyceum, 34th St., New York City.

Exhibits, 1 P. M. to 10 P. M., both days. Clinics, 7.30 P. M. to 10 P. M., both days.

In addition to invitations sent to the dental societies, 2,500 programmes will be sent to dentists in Greater New York and vicinity, and with the night clinics and exhibits, a large attendance is assured.

We are arranging an excellent programme and will spare no effort or expense to make this affair successful.

L. J. WEINSTEIN, Secretary.

212 E. Broadway, New York City.

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## **Fifth District Dental Society of the State of New York.**

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The Thirty-ninth Annual Meeting of the Fifth District Dental Society of the State of New York will be held at the Yates Hotel, Syracuse, N. Y.; April 9 and 10.

C. A. SAYERS, Recording Secretary.





### **Southern Wisconsin Dental Association.**

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The Thirteenth Annual Meeting of the Southern Wisconsin Dental Association will be held at Lancaster, Wis., May 21, 22, 23. All reputable practitioners are cordially invited.

Clinton, Wis.

C. W. COLLVE, Secretary.

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### **Mississippi Dental Association.**

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The Fourteenth Annual Meeting of the Mississippi Dental Association will meet in the County Court House, in Meridian, May 28, 29, 30. All ethical practitioners of this and other States are cordially invited to attend.

Reduced rates for railroad and hotel accommodations will be secured. For full particulars, address

E. DOUGLAS HEAD,  
Secretary Miss. Dental Association,  
Tupelo, Miss.

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### **Kentucky State Dental Association.**

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The next annual meeting of the Kentucky State Dental Association will convene at Louisville, Ky., May 20, 21, 22, 1907. We anticipate a most interesting and profitable meeting. A cordial invitation is extended to the profession.

W. M. RANDALL, Secretary.

Cor. Brook and Broadway.

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### **Nebraska State Dental Society.**

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The Thirty-first Annual Meeting of the Nebraska State Dental Society will be held in Lincoln, May 21, 22, 23, 1906, at the Lincoln Dental College.

M. G. VANCE, Secretary.





### **Georgia State Dental Society.**

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The Thirty-ninth Annual Meeting of the Georgia State Dental Society will be held in Atlanta, Ga., May 7, 8, 9, 10, 1907.

All ethical practitioners are cordially invited to attend.

D. H. McNEILL, Cor. Secretary,  
Athens.

WM. CRENSHAW, President,  
Atlanta.

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### **Alabama Dental Association.**

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The next Annual Meeting of the Alabama Dental Association will be held in Birmingham, beginning on the second Tuesday in May, 1907, and continuing four days. All ethical dentists are invited to attend. Reduced rates on all railroads on certificate plan.

F. A. JOHNSTON, Secretary.

Sheffield, Ala.

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### **Southern Nebraska Dental Society.**

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The Southern Nebraska Dental Society met in Superior, February 13th, and the meeting was very successful. Dr. Clyde Davis, Dean of the Lincoln Dental College, was with us and gave us very beneficial clinics, both chair and table, in enamel fillings. Cavity preparation was also discussed. A business meeting will be held in Lincoln during the State meeting to be held May 22, at 3 P. M., at Tindall Hotel.

W. A. McHENRY.

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### **Illinois State Dental Society.**

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The Forty-third Annual Meeting of the Illinois State Dental Society will be held in Quincy, May 14, 15, 16, 17.

A. D. BLACK, Secretary.





### **Connecticut State Dental Association.**

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The Forty-third Annual Convention of the Connecticut State Dental Association, will be held at New London, Conn., Tuesday and Wednesday, April 16, 17, 1907. Essays will be presented by Dr. F. B. Noyes, Chicago, "The Structure of Enamel with Reference to Cavity Preparation." Dr. H. C. Ferris, Brooklyn, N. Y., "Antiseptic Sprays and Their Physiological Action." Dr. G. M. Griswold, Hartford, Conn., "Burnished Fillings." Dr. E. Whitford, Westerly, R. I., "Our Old Standby." Dr. A. J. Flannagan, Springfield, Mass., "Comparisons Are Odious." Dr. F. S. Belyea, Brookline, Mass., "The Artistic Arrangement of Teeth."

E. S. ROSENBLUTH, Secretary.

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### **Nebraska Board of Dental Examiners.**

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The next meeting of the Nebraska Board of Dental Examiners will be held at the State House in Lincoln, Neb., May 29, 30, 31, 1907. All applicants for examination must have their applications in the hands of the Secretary five days before this date. For further information, address,

DR. C. F. LADD, Secretary.

1241 O Street, Lincoln, Neb.

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### **Alumni Clinic of the St. Louis Dental College.**

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The Alumni Association of the St. Louis Dental College (formerly Marion-Sims) wish to announce that their Annual Clinic will be held at the college building, Grand Avenue and Caroline Street, on Tuesday and Wednesday, May 7 and 8, 1907.

All ethical members of the profession are cordially invited to come and enjoy the festival of good things being prepared, and every member of the Alumni is especially requested to show his allegiance to the Association by his presence.

Respectfully,

JOHN BERNARD O'BRIEN,

W. L. O'NEILL,

Committee on Publicity.





### **Alumni Association of Washington University Dental Department.**

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The Annual Meeting of the Alumni Association of Washington University Dental Department (Missouri Dental College) will be held May 20, 21, at the College Building, 2645 Locust Street, St. Louis, Mo. A number of prominent essayists and clinicians have been secured, and an interesting and instructive programme will be presented. Adequate space has been secured for the various manufacturers exhibits. This will be a noteworthy feature of the meeting. All ethical practitioners invited. Executive Committee— Dr. A. J. Prosser, Chairman; Dr. F. W. Horstman; Dr. Chas. Herbert.

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### **Dental Department of the University of Maryland—Class of 1895.**

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There will be a reunion of the class at the University during the University Centennial, May 30 and 31, June 1 and 2. All members are asked to write Dr. E. H. Markley, Gettysburg, Pa., for further information at once.

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### **Lake Erie Dental Association.**

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The Forty-fourth Annual Meeting of the Lake Erie Dental Association will be held at Hotel Rider, Cambridge Springs, Pa., on May 21, 22, 23. Upon our programme this year are men of exceptional merit, and we are pleased to invite all reputable dentists and their friends to this beautiful place for convention purposes.

Warren, Pa.

V. H. McALPIN, Secretary.

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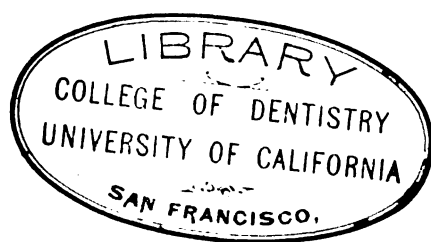
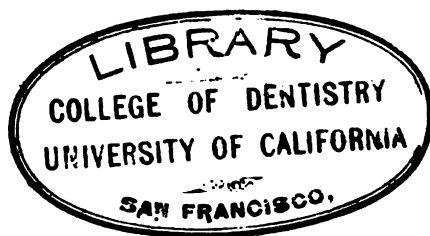
### **Eastern Indiana Dental Association.**

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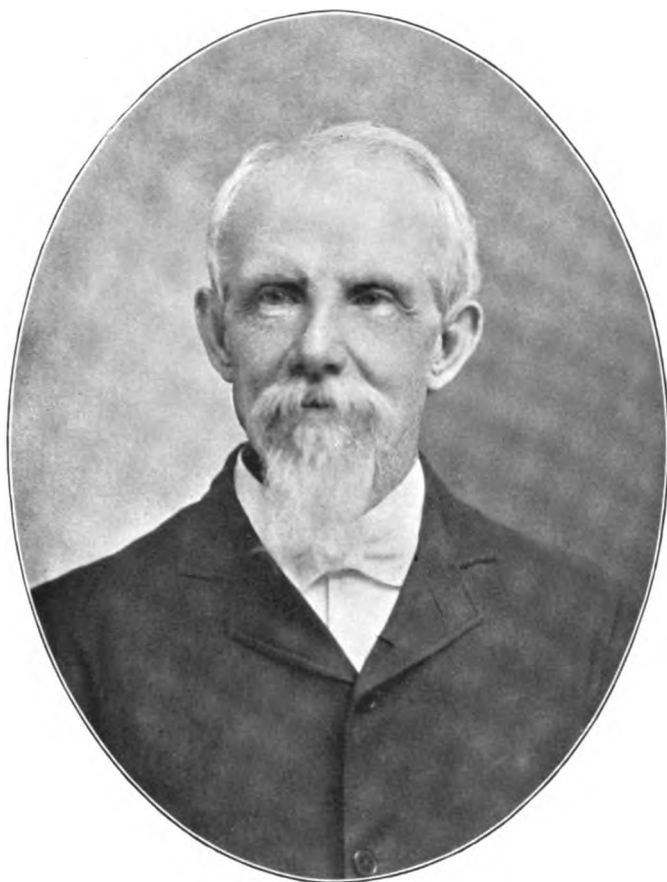
The Eastern Indiana Dental Association meets in Anderson, Indiana, May 14 and 15. Good clinics. Good papers. Everybody invited. Everybody who comes is a member.

C. W. ORLAND.









DR. J. HALL MOORE





## General Considerations of Porcelain.\*

By DR. JOHN Q. BYRAM, Indianapolis, Ind.

In order to understand better the properties of porcelain, it is necessary to consider the ingredients of which it is composed. Such a consideration shows porcelain to be made up of three classes of substances. First, the basal ingredients, which are very refractory; silix and kaolin, which when heated alone, will undergo intense heat with practically no change; and feldspar, a less refractory substance, which when heated to a high degree undergoes liquifaction. Second, fusible substances known as fluxes, which fuse at a lower temperature and increase the fusibility of the more refractory substances; and, third, metals or their oxides used as pigments.

**Silix.** Silix ( $\text{Si O}_2$ ) is the oxid of silicon, and is an infusible substance insoluble in all acids except hydrofluoric, but slightly soluble in caustic alkalis.

It forms about 13.5 per cent. of the basal mass. It adds strength and firmness to the porcelain and gives it a more translucent appearance.

**Kaolin.** Kaolin ( $2\text{Al}_2 \text{O}_3 \text{ Si O}_2 3\text{H}_2 \text{O}$ ) is the silicate of aluminum and is composed of aluminum oxid, silicon oxid and water. It is commonly spoken of

as disintegrated feldspar. Through the natural process of decomposition feldspar loses its potassium oxid ( $\text{K}_2 \text{O}$ ) by the action of water

\*Copyright, 1907, by Consolidated Dental Manufacturing Co.



## ITEMS OF INTEREST

and other agents Kaolin forms about 4.5 per cent. of porcelain. It is a very refractory clay when heated alone, but readily unites with feldspar when mixed with it. When added to porcelain it gives stability of form, which property permits unfused porcelain to be molded and carved.

**Feldspar.** Feldspar ( $\text{Al}_2 \text{O}_3 \text{ K}_2 \text{O } 6\text{Si O}_2$ ) is the double silicate of aluminum and potassium. It is composed of aluminum oxid, potassium oxid and silicon oxid. The chemical difference between feldspar and kaolin is that feldspar contains potassium oxid, which kaolin does not, and kaolin contains water of crystalization, which feldspar does not. It composes about 82 per cent. of the basal mass of porcelain and adds translucency to it. While feldspar is more fusible than either silicon or kaolin, it requires more heat than can be produced in the electric furnace to fuse some grades of it.

**Fluxes.** The materials commonly used as fluxes, to increase the fusibility of porcelain, are substances containing sodium borate ( $\text{Na}_2 \text{ B}_4 \text{ O}_7$ ), sodium carbonate ( $\text{Na}_2 \text{ CO}_3$ ), potassium carbonate ( $\text{K}_2 \text{ CO}_3$ ), or glass (which contains the oxids of potassium or sodium). The more refractory ingredients, the flux and the frit are ground together in the preparation of the porcelain for the market. Then, when fused, a chemical change takes place, forming an indefinite compound, from which none of the original ingredients can be removed except by some process which involves the destruction of other ingredients.

**Pigments.** The pigments most commonly used in the manufacture of dental porcelains are precipitated gold, platinum, purple of Cassius (the oxid of gold and tin), the oxids of gold, titanium, manganese, cobalt, iron, uranium and silver. The colors produced by the use of these pigments in varying proportions are hues of red, yellow, blue, green, brown, and gray.

**Dental Porcelain.** The basal ingredients of porcelain are used in the formulæ for low fusing porcelains, but the fusibility is regulated by the proportion of flux added to the formula. The process of fusing and grinding is continued until the ingredients are thoroughly mixed. Both high and low fusing porcelains may contain a small proportion of starch in their formulæ, which imparts additional stability of form by agglutinating the particles of the mass during the process of molding and carving. It is not, however, a component ingredient of the porcelain, for the heat required to fuse the porcelain will volatilize the starch.

Dental porcelain is divided into high fusing and low fusing porce-



lain. The distinction has been accepted by the profession to mean that a high fusing porcelain is one which fuses above the melting point of pure gold, while a low fusing porcelain fuses at a temperature below this point. Such a distinction is relative rather than accurate, because porcelain has no definite fusing point. Any enamel body or foundation body can be fused on pure gold, provided enough time is given. Some low fusing porcelain will fuse above the fusing point of pure gold, provided the requisite heat to fuse the gold is obtained rapidly. While the above distinction seems to meet all practical requirements, it is unscientific and its only value is to make a convenient distinction between the two classes of porcelain for practical usage.

Because porcelain is an indefinite compound and has no definite fusing point, the following distinction is made between high and low fusing porcelain. High fusing porcelains require more than five minutes to fuse, while low fusing porcelains require less than five minutes to fuse at 2,000 degrees F. It is impossible to fuse any of the high fusing porcelains at 2,000 degrees F. in five minutes, and it is also impossible to keep any of the low fusing porcelains in contact with a heat of 2,000 degrees F. for five minutes without becoming over fused. Porcelains are divided into basal bodies, foundation bodies, enamel bodies and glazes. All basal and foundation bodies are high fusing porcelains, while enamel bodies and glazes may be either high or low fusing porcelain.

Basal bodies are used in crown and bridge-work and for the construction of hand carved teeth, but there is no necessity for using them in inlay work. The use of basal bodies requires a specially constructed furnace for obtaining and maintaining the intense heat needed to fuse them. The present types of electric furnaces may be used, but they can not be depended upon to furnish enough heat to fuse large masses of basal body unless new muffles are procured oftener than most dentists care to buy them, because the intense heat causes the fire clay readily to affect the platinum wire of the muffle. But the foundation and enamel bodies will meet the requirements for inlay work, and the operator should learn the characteristic properties of each of these two classes of porcelain.

While all the porcelains have properties in common, there are, however, certain properties which characterize each manufacturer's product. It is important that these characteristics should be thoroughly understood in order to obtain the best results. With all porcelains the general principles of manipulation are the same. All may be mixed with alcohol, but this mixture is not adapted to molding and carving. Likewise all porcelains may be mixed with water, which insures the possibility of molding and carving.



## ITEMS OF INTEREST

Laboratory experiments with the various porcelains will prove of great value both to the student and the practitioner. If the characteristic properties of the different porcelains are understood, the selection of the material to meet individual requirements will be simplified and the operator will be relieved of much uneasiness.

In a series of experiments carried on for the purpose of studying some of the phenomena of the fusing of the various porcelains, cubes of porcelain 5 mm. on each face, weighing approximately 2.5 grains when thoroughly dried, were taken for a standard (Fig. 1). The first experiments were to determine the fusibility of the different porcelains. As porcelains are indefinite compounds, they have no definite

**Phenomena Met in  
Fusing Porcelain.**



FIG. 1.

fusing point. Porcelains which ordinarily vitrify from 2,080 to 2,500 degrees can be fused on pure gold by allowing long enough time. The experiments showed that Brewster's enamel body can be properly fused on pure gold in from fifteen to forty-five minutes. The difference in time depends upon the heat applied. Close's body (Justi's) requires from thirty minutes to one hour and fifteen minutes to fuse properly on pure gold. Brewster's foundation body, S. S. White's inlay and Whiteley's inlay porcelains require from one to three hours to fuse on pure gold. The Consolidated Company's high fusing porcelain requires from eight to ten hours to fuse on the same material.

It was found that Brewster's foundation body, Close's body (Justi's), S. S. White's and Whiteley's inlay porcelains could be fused on 10 per cent. platinous gold, which fuses approximately at 2,115 degrees, in from fifteen to thirty minutes. Tests were also made with these porcelains on 15 per cent. platinous gold, which fuses approximately at 2,175 degrees. It then required from ten to twenty minutes to fuse Brewster's foundation body, S. S. White's and Whiteley's inlay porcelains.

In studying fused porcelain under the microscope, it was observed that those porcelains which were fused at a lower temperature for a long time, presented more homogeneous and more highly glazed surfaces,



while the surfaces of porcelains which were fused at a high temperature for a short time appeared more granular. The cubes were then fractured and the inner portion examined under the microscope. It was invariably found that those porcelains which were fused for a long time at a lower temperature were more homogeneous in texture.

The next series of experiments were made to determine the relative porosity of underfused and overfused porcelain. In studying the surfaces of the cubes of both high and low fusing porcelains under the microscope, it was found that the surfaces of overfused porcelain were covered with little blisters. Underfused porcelain appeared granular and less dense, while properly fused porcelain presented a denser surface, free from blisters.

The next experiments were to determine the effect of repeated contact of porcelain with the maximum heat required to fuse it. A cube of porcelain was fused at a definite degree of heat. A second cube was then placed beside the first and both heated to the same degree of heat. Then a third cube was placed beside the two and the three heated to the heat required to fuse them. This process was continued until the fifth cube had been fused. The first, second and third cubes were slightly overfused and lighter in color, while the fourth was only slightly lighter in color.

The next experiment was to test the effect of repeated heating of porcelain to the point of biscuiting. This showed that any of the porcelains would finally become fused and maintain their characteristic color.

It is a significant fact that underfused porcelain has a much duller color and is more opaque, while overfused porcelain becomes lighter and tends to become more transparent. If porcelain remains in contact with the maximum heat long enough, it fuses into a glass-like mass. All the shades of a color from a normal to a light may be obtained by increasing the heat above the maximum fusing point of the porcelain, but this is done at a sacrifice of its strength.

It is also a fact that porcelain can be fused, then ground and re-fused at a lower temperature than the first fusing. And if this process of re-fusing and regrinding be repeated a number of times, a high fusing porcelain becomes low fusing. It was also found that the re-fusing and grinding of the porcelain changed its properties.

The following deductions are made from these experiments:

**Deductions  
from Experiments.**

1. Porcelain has no definite fusing point.
2. By prolonging the time of exposure to heat, a thoroughly fused porcelain may be obtained at a comparatively low temperature.



## ITEMS OF INTEREST

3. Porcelains fused at a lower temperature for a long time will maintain their characteristic color, and will be more homogeneous in texture.

4. Low fusing porcelains can be made of high fusing porcelains by repeated fusing and grinding.

5. If a piece of porcelain is thoroughly fused and more porcelain added and fused, the first layer will be slightly overfused. In the process of applying porcelain in layers and fusing each layer, the underlying layers will be slightly overfused and somewhat lighter in color.

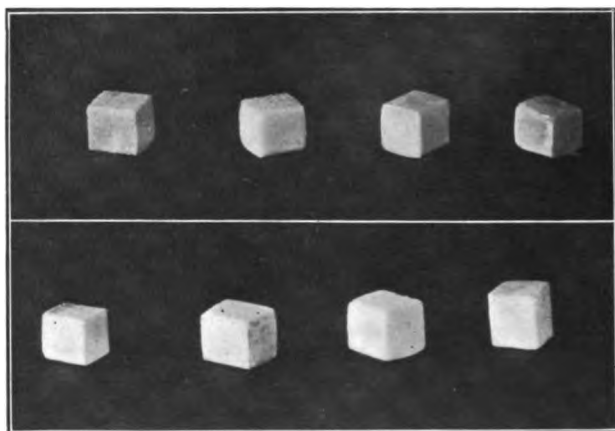


FIG 2.

6. A small mass of porcelain is more readily affected by heat than a larger one, and as the size of the mass of porcelain increases just in that ratio does the length of time required to fuse it increase.

7. Porcelains containing a large percentage of flux are more easily affected by bubbles than those that are more nearly composed of the basal ingredients.

8. It is more difficult to maintain the characteristic color of low fusing than high fusing porcelains when held for a long time at the maximum heat required to fuse them.

9. Low fusing porcelains are denser, have greater shrinkage and less tensile strength than high fusing porcelains.

10. By repeatedly heating porcelain to the point of high biscuiting, it will finally become fused and maintain its characteristic color.

11. High fusing porcelains shrink from 15 to 25 per cent., while low fusing porcelains shrink from 20 to 35 per cent.



12. A coarsely ground porcelain fuses at a higher temperature and shrinks less than one of the same formula finely ground.

13. The amount of shrinkage of any porcelain will in a measure be dependent upon the consistency to which it is mixed, and the density to which it is condensed. The thin mixtures show more shrinkage than those of a putty-like consistency.

14. Underfused porcelain has a much duller hue and is more opaque, while overfused porcelain becomes lighter and tends to become more transparent. All the shades of a color from dark to a light may be

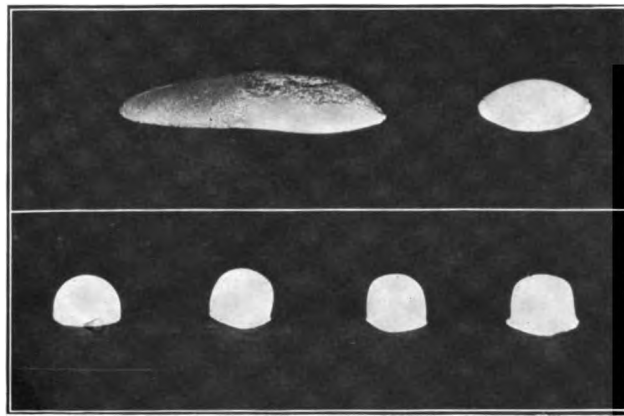
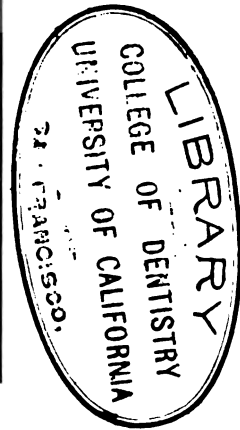


FIG. 3.



obtained by increasing the heat above the maximum fusing point of the porcelain, but this is done at the sacrifice of its strength.

15. The tendency of both high and low fusing porcelains is to assume spheroidal form when overfused, and if considerably overfused they tend to form an amorphous mass of glass.

Figure 2 shows four cubes of low fusing and four cubes of high fusing porcelain each heated separately to the state of hard biscuit. Figure 3 shows the effect on the form of the mass by overfusing porcelain. All of these cubes were fused at the same time and heated to a degree of heat sufficient to overfuse the foundation bodies.

The first three cubes ran together into an amorphous glass-like mass, while the fourth cube formed an amorphous mass to itself. The fifth cube, which was an enamel body, changed to an irregular spheroidal form and the last three cubes became rounded at the edges.

The process of fusing porcelain is largely a chemical reaction,





brought about by the various ingredients combining to form multiple silicates of aluminum, potassium or sodium with the liberation of gases.

The method of fusing porcelain at its maximum temperature for a short time is to be condemned. It makes the porcelain more brittle and causes the formation of minute bubbles throughout the entire mass, for the intense heat required to fuse the porcelain in a short time may cause the generation of gas faster than it can escape.

The pioneers of dentistry who began the development of dental porcelain were more skillful in its manipulation than most of us at the present time. They were required to grind their materials, solve their formulæ and compound their ingredients. They were also required to carve gum section blocks and other special forms of teeth, and thus developed an art that is almost lost to the dental profession to-day. The technique of performing experimental operations with porcelain develops the operator's skill in its manipulation and thus assists him in performing his practical operations. Experimental work in the laboratory is not a waste of time, but helps one to become more familiar with the subject. The difficulty with many beginners is their unwillingness to devote that time to experimental work which is required to obtain a thorough knowledge of the properties of porcelain and the general principles of manipulating it.

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### **The Common Causes of Nasal and Naso-Pharyngeal Obstruction: Their Symptoms, and Relation to Orthodontia.**

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By FRANCIS ASHLEY FAUGHT, M.D., D.D.S., Philadelphia, Pa.

*Assistant to the Professor of Clinical Medicine, Medico-Chirurgical Hospital and College, Attending Physician to the Lincoln Day-Nursery, etc.*

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Much uncertainty exists in the average mind in the dental profession concerning the symptoms, diagnosis, and location of the common obstructions found in the upper respiratory tract. This fact has been repeatedly brought to my notice at society meetings, in conversation, and by reading the reports of the proceedings of societies as they appear in the journals from time to time. This view has been further strengthened by questioning my friends and acquaintances in the dental profession.

That such a lack of definite knowledge is lamentable can not be denied, and that it is a decided hindrance to the performance of the highest service, particularly in the case of children, and in the correction of dental irregularity, is, I think, evident. How can any one who is



unfamiliar with the fundamental facts of these conditions, attempt to understand the secondary disturbances and the causal relationship existing between them and oral deformity, and not realizing this relation himself, how can the dental advisor intelligently explain this relation to parents, show their presence and bearing in a given case or argue forcefully for their treatment or removal?

In this age of specialization, where dentistry, a specialty of medicine, possesses within its limits the sub-specialty of orthodontia, it is highly important that this deficiency should be recognized and filled in, possibly by giving the subject of diseases of the upper respiratory tract a position

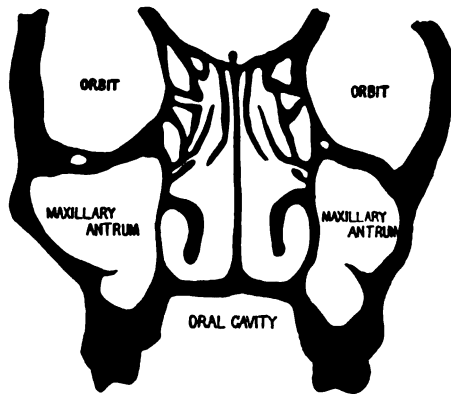


FIG. 1.

in the curriculum of dental schools, and by including it in the text-books used by dental students.

The obstructive lesions which will be considered in this brief paper are the following: adenoids; hyperplastic rhinitis; hypertrophy of the posterior extremity of the inferior turbinate; deflected septum; nasal polypus and hypertrophied tonsils.

The most common as well as the most important of these conditions is the so-called adenoid disease (Fig. 2). This is the result of a lymphatic hypertrophy of the tissues lining the pharyngeal vault. The disease is essentially one of childhood, rarely extending beyond puberty as a disease *per se*, but frequently leaving in its train pathologic changes which exist throughout the life of the individual. These secondary changes include, diminution in hearing through disturbances in the middle ear, chronic rhinitis, deformities of the chest, the face and of the *dental arches*.

Examination of the naso-pharynx with the rhinoscopic mirror in the presence of adenoids reveals irregular prominences in the posterior wall



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and vault of the pharynx, causing more or less stenosis of the posterior nares. To the palpating finger this mass gives the characteristic "bunch of earth worms" feel. As age advances these become firmer and more resisting through an increase in fibrous tissue, and later become considerably smaller, though they rarely if ever totally disappear.

Children suffering from this disease present a characteristic blank facial expression, and a peculiar dead quality of voice.



FIG 2.

By questioning the parent we can usually develop a history of more or less disturbed nasal respiration, producing noisy breathing or snoring at night. There is always some catarrhal discharge, usually with cough, becoming worse in damp weather. The child is very subject to colds, and is prone to develop attacks of croup and bronchitis on the slightest provocation. Deafness in slight degree is an early and frequent complication, causing apparent inattention, backwardness, and disobedience on the part of the child.

Existence of any one or a combination of the above symptoms should at once arouse suspicion, which should immediately call for a thorough examination of the upper respiratory tract.

### **Intra-Nasal Obstruction.**

Interference with proper nasal respiration through the presence of intra-nasal obstruction, while less common, in children, than adenoids, must not be forgotten, and in the demonstrated absence of ade-



noids should be carefully sought. Such obstructions produce symptoms very similar to those occurring in adenoids, from which they can not be differentiated except by direct examination.

These intra-nasal obstructions may be due to a general hyperplasia of the mucous lining of the nose (Fig. 3), causing marked diminution in the respiratory capacity of that organ. In other cases it may be confined chiefly to the mucous lining of some of the accessory cavities of

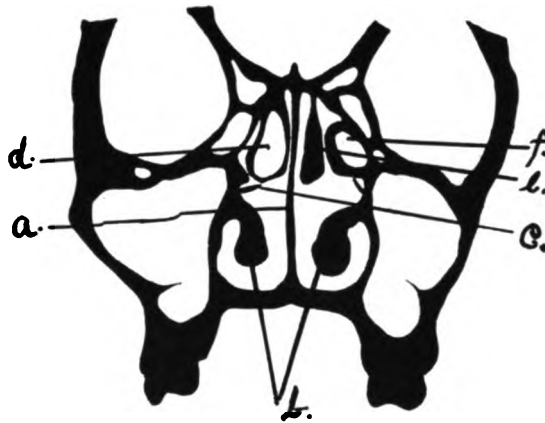


FIG. 3.

the nose, particularly the ethmoid cells (Fig. 3 f), in which case the obstruction will be found in the region of the middle turbinate.

In another class of cases the inferior turbinate in its posterior part presents the chief obstruction (Fig. 4). Differing from the three preceding, involving the region of the middle turbinate and in rare instances the nasal septum at this point, is polypoid degeneration (polypus), (Fig. 5). This is generally looked upon as a disease of middle and later life, but as numerous cases have been reported in young children this paper would be incomplete without reference to it.

Regarding the septum, Cryer and others have shown that a perfectly plain and vertical septum (Fig. 1 a) is practically an anatomic impossibility.

We must therefore in the examination of the intra-nasal region be satisfied with what we believe to be a physiologically perfect one. One which as far as functional capacity and the absence of secondary disturbances and symptoms are concerned, is all that can be desired.

Various classifications have been offered to cover all degrees of irregularity of the septum from a simple curvature in either the vertical



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or horizontal plane to the extremes of irregularity and crumpling which may follow crushing traumatism. While these arrangements are convenient in the description of cases and in illustration of operations they need not be considered here, as from the dental standpoint the functional capacity alone is of importance.

Associated with deflection there is more or less thickening in the region of greatest convexity (Fig. 7 a), while upon the concave side nature has endeavored to conserve the functions of the nose by filling it with a compensatory hypertrophy of the inferior turbinate bone (Fig.



FIG. 4.



FIG. 5.

7 b). The symptoms arising from this complicated condition are similar to those resulting from adenoids. The diagnosis rests upon the presence of obstructive symptoms confirmed by intra-nasal examination.

### **Tonsillar Hypertrophy.**

Chronic tonsillar hypertrophy, not only because it is an indication of the probable presence of adenoids in the same subject, but also because it is the cause of very definite disturbances in the shape and conformation of the dental arches, through perverted muscular activities, should always be considered in the pathology of such conditions, and it is well to remember that the removal of adenoids alone when accompanied by tonsillar hypertrophy, may fail to attain the desired end, and further that in the treatment of hypertrophied tonsils the post-nasal space should not be neglected.



**Etiological  
Factors in  
Malocclusions.**

Passing now to a consideration of the value of the knowledge of these several conditions, and their relation to the practice of dentistry, more particularly to the specialty of orthodontia, we note throughout all these conditions described the one prominent symptom of obstructed nasal breathing, often resulting in actual mouth-breathing with snoring at night in many cases. Also one can not fail to note the frequent coincidence of the two conditions, mouth-breathing and dental irregularity. This can not be called purely acci-

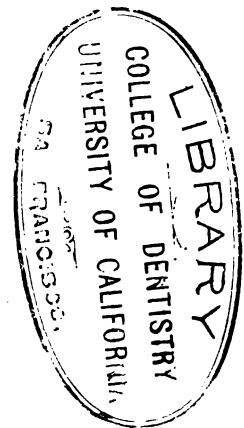


FIG. 6.

dental when we consider the cause and effect of the altered relation of the tissues and the jaws and mouth, particularly the unequal forces developed during mouth-breathing, and the mechanical effect upon the jaws and teeth.

To grasp these salient facts is to attain proper realization of the importance and gravity of these diseases. From the dental standpoint, let us go a little more into detail. During quiet normal nasal respiration the muscle forces in the region of the mouth are in a state of equilibrium. The teeth are in occlusion, the lips closed and in close relation with the oral teeth, the cheeks rest upon the outer surfaces of the bicuspids and molars, while the tongue is in close contact with, and gives support to all the teeth from within.



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During mouth-breathing the mandible is depressed, thus increasing the tension of the fasciæ and muscles of the cheeks, the teeth of the two jaws no longer exert a restraining influence over each other, the lips are parted and the tongue is removed from its normal contact with the teeth. Thus the normal equilibrium is destroyed and in its stead unequal forces are brought to bear on the teeth and dental arches.

This disturbance comprises an increase in pressure upon the buccal aspects of the teeth with a lack of proper support from within, which causes these teeth to move inward; at the same time, by this movement,

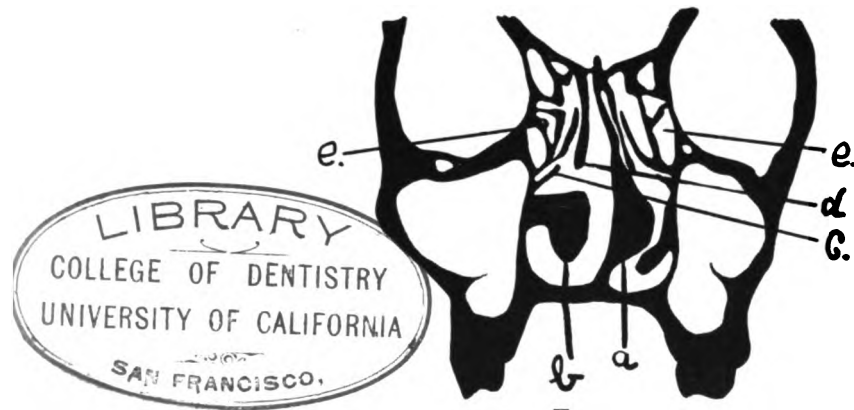


FIG 7.

pressure is brought to bear upon the oral teeth causing their movement forward.

These forces even when active over but a part of the twenty-four hours are capable when active through a long period of time of producing decided deformity, the character and extent of which depends upon many factors which vary greatly in each case. Probably the most common result is the so-called "open bite" deformity.

It seems almost superfluous in the light of this evidence to note that treatment should always be directed first toward the obstructive lesion when it exists, and that only when removal of this has been accomplished should active measures directed to the oral deformity be contemplated or put into effect. Neglect of this fact probably accounts for many failures in this class of cases. For even when correction is accomplished in the presence of nasal obstruction, it has been achieved at an unnecessary expenditure of energy, because of the constant antagonism of the perverted muscle forces during the time of active treatment. While after



the final removal of all appliances the jaws are still under the original deforming influence which in time may cause a return of the irregularity, the extent of which will depend upon many incompatible factors.

In making these illustrations actual sections were utilized, from which accurate measurements were taken and transferred to paper. Within the nasal chambers the arrangement is semi-diagrammatic in order to bring out more forcibly (1, 3, and 7) the pathologic conditions represented.

Figures 1, 3 and 7 represent the relation of structures in a section passing through the first molar teeth.

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## Instantaneous Relief in Cases of Blind Abscess.

BY JAMES E. KEEFE, D.D.S., Chicago, Ill.

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Instantaneous, and often permanent, relief from pain following infection from a pulpless tooth may be obtained by the use of equal parts absolute alcohol and water. Whether the pain is caused by an upper or lower tooth the treatment is equally effective.

The preparation can best be used with what is known as a watch case atomizer. Fill the atomizer with the solution, then, having the patient recline the head a little, place the nozzle of the atomizer into the nostril on the side where the trouble is, spray the solution back into the nostril twice and the pain will be relieved immediately. In some cases there will be a slight amount of gagging and the solution will come out through the mouth, but this comfort is only temporary.

If the pain should return within fifteen minutes a stronger solution, say 75 per cent. alcohol and 25 per cent. water, may be used and the treatment repeated, but usually the 50 per cent. solution will be sufficient and will permit you to open up the tooth and give the patient relief.

The watch case atomizers may be obtained from almost any large drug house. If you can not get one use any atomizer that will force a spray far back into the nose.



## A Reply to Dr. J. E. Hinkins's Paper.

By DR. E. C. KIRK, Philadelphia, Pa.

### PART II.

We now come to the second phase of the paper, namely, that portion which is in criticism of the paper read by me before the Second District Dental Society in March, 1902, and which appears in the *ITEMS OF INTEREST* for July of the same year, entitled "A Clinical and Chemical Study of a Case of Dental Erosion." The main points which Dr. Hinkins deems it necessary to criticise in that exhibit are, as I understand them, two: First, that I did not verify my findings with the micropolariscope by the ordinary methods of chemical analysis. Second, that I have pinned my faith unwarrantably upon the value of the micropolariscope as a means for arriving at the conclusions in that paper.

Incidentally, and as a somewhat collateral issue, he takes me to task for my lack of certainty as to the nature of the compound which I referred to as "so-called calcium lacto-phosphate." I believe that these three features comprise the principal, if not the only, points at issue in the remainder of his paper.

I think we will all agree that the study of the chemical composition of the saliva presents one of the most intricate problems with which chemical science has attempted to deal. As a matter of fact, despite the fairly voluminous number of contributions which have been made upon the subject, our definite knowledge of the chemical composition of the saliva, especially when we come to consider its almost protean variations in composition in different individuals and in different nutritional states, is extremely limited. It is limited not only for the reason that the saliva lacks uniformity in composition, broadly speaking, but it is limited also mainly because the ordinary methods of chemical analysis, gravimetric or volumetric, are only applicable to its investigation in an extremely limited degree. I believe Dr. Hinkins to be in agreement with this general proposition, for he is reported to have said in closing the discussion of his paper read before the St. Louis Congress (*Dental Cosmos*, March, 1905, page 369): "Of all the hard things with which the chemist comes in contact, the saliva of the mouth is one of the hardest. It is changed by the diet, the habits, the nervous condition, etc. When you take the saliva and try to analyze it, you can not, because it is too complex, and in the analysis these complex substances are broken down into simpler ones, and we no longer have the properties of the original substances in the saliva."



In view of this very broad and emphatic statement, it does seem to my mind a little puzzling why he should have expected me to analyze the saliva at all by chemical means, and if he really believes the statement which I have just quoted from him, I question whether he would have had any faith in my results even if I had analyzed it chemically. But I agree, if not in detail, at least with the general idea of his statement, and it is because of that difficulty which he has stated, the difficulty in regard to devising analytical means for the study of the saliva, that I decided to make a study of the possibilities of the micropolariscope as an aid in throwing some light upon this intricate problem. And at this point I would call attention to the opening paragraph of my paper in which I presented this question before the Second District Dental Society, as follows: "I dislike very much to begin a talk with an apology, but there are two features of this presentation for which an apology is required. One is for the absence of my patient, who was taken ill at the last moment with an acute attack of a disorder which I think is at the base of his mouth difficulty, so that despite his earnest desire to be here, and my desire to have him here, he is bedridden and unable to be present. The second point is that my report is not of a finished investigation, but rather an uncompleted sketch or study of a case of erosion; yet I think it will portray a method of research which will let in some light upon the nature of this disorder."

**Value of the  
Polariscope.**

I ask Dr. Hinkins and all who pass judgment upon this matter to take into account, and at its face value, that statement of my position. I have read with care the arguments which Dr. Hinkins puts forth in order to show the chances of error which can arise in connection with the study of crystal forms by the polariscopic method. It seems to me that these arguments do not differ in character from those which he has previously put forth on the same subject, and which I have elsewhere attempted to answer. I concede him practically all that he claims in regard to the possibility of error in this use of the micropolariscope. I can not do otherwise when I look back over not only months, but years, of careful patient study which I have made in order to find out for myself whether the polariscope could be made use of with any degree of certainty as an aid in this class of investigation. And what is apparent to me, and I think must also be apparent to any unprejudiced observer, is this, that Dr. Hinkins is attacking this question from a point of view diametrically the opposite of that from which I have proceeded with my own work in this connection, that is to say, everything that he has uttered within my knowledge bearing upon this subject is condemnatory of the use of the micropolariscope. He seems to have started



## ITEMS OF INTEREST

out with the preconceived idea that because there are large chances for error to creep in in the use of the micropolariscope, therefore it must be altogether untrustworthy, and consequently useless.

My attitude toward the matter has been the reverse of this. While I have been familiar since 1875 with the polariscope in some of its relationships, and while I have realized that the possibilities of error in its use are large, I have taken up its study sympathetically, not from the point of view of its deficiencies, but rather to ascertain its possibilities. All that I have read of the published works of Dr. Hinkins and those associated with him, bearing upon their use of this instrument, indicates to my mind that they, upon the one hand, and I upon the other, have been working not only from opposite points of view, but by different methods. It is therefore not at all strange that we should arrive at different conclusions regarding the availability and usefulness of this instrument for the purposes under consideration.

Dr. Hinkins criticises a statement which he quotes at page 207, March *ITEMS OF INTEREST*, from my article in the *Dental Cosmos*, page 339, March, 1905, and in so doing gives it altogether a different meaning and application to what was originally intended. He does this by making a broad general application of my statement regarding the value of the micropolariscope in salivary analysis, when I have, as a matter of fact, in the statement which he quotes specifically limited my appreciation of its value to just that particular class of work. I still believe that in salivary analysis the micropolariscope gives, in competent hands, results as trustworthy as the ordinary methods of chemical analysis for that purpose. I believe this because of the extreme difficulty of analysing the saliva by chemical means, as to which latter difficulty Dr. Hinkins is clearly on record for the same belief, as I have already shown. But Dr. Hinkins's clever perversion of my meaning in this instance and in several others which I have noted in the course of this rejoinder, together with the general tone of his entire article, forces me to the conclusion that he is less strenuously concerned in getting at the facts of the situation from a scientific interest in the subject than he is in his endeavor to get even in some way with his opponent for a fancied injustice.

I pass by the criticism which Dr. Hinkins makes upon my reference to the spectroscope in an illustrative way, with the simple statement that he does not seem to have understood, even there, my meaning. He had criticised my statement that there were other methods than by chemical analysis by which chemical compounds could be determined, and in reply I instanced the spectroscope as an example. I did not say nor did I imply that the two instruments were of equal accuracy for the purposes under consideration. But I would have him consider this point, which



he doubtless will concede, that of the one hundred thousand or more tabulated compounds to which he refers, a vast number, in the very nature of the case, are excluded from consideration as constituents in the saliva. But he takes the ground that even if but two presented identical appearances under the micropolariscope, even then additional means would be required to distinguish them. This also I frankly concede. I concede his whole argument in support of his statement to the effect that the identification of certain compounds often requires days, months, and even years of elaborate study before all that may be known about the substance is definitely known. Yet, notwithstanding these facts, it is also a matter of fact that the observer constantly working in a definite line and with certain data gradually becomes more and more familiar with those data, and becomes able to recognize them and know them as such without being obliged each time to rehearse his proofs or cross-prove his work to the extent that one less familiar with the subject would be obliged to do, in order to arrive at that point in his study where he could reach more or less definite conclusions regarding his observations.

I take it for granted that it would not be necessary for Dr. Hinkins, nor for the many of my readers, to take a crystal of copper sulphate, for instance, put it through a complete chemical analysis, or subject it to a long line of physical and chemical tests in order to determine with reasonable certainty that it was a crystal of copper sulphate. And so with many other compounds. Again, the microscope, even without the assistance of polarized light, is to-day used extensively by those concerned in the study of urinary sediments to determine by its aid and from their form alone the nature of crystalline deposits in these sediments. So familiar do these crystal forms become that microscopists with at least a fair degree of accuracy are able to say that many substances having known crystalline form are either present or absent from the sediments of urine, and this is done without employing chemical analytical methods. Of course, the accuracy of findings made in that way becomes largely a question of training and experience of the observer; all of which work, and even the work of the analytical chemist, is open to the possibility of that form of error which we know as the personal equation.

What I am endeavoring to bring out is to show that with training and careful study, based upon more or less continuous observation, one's ability to draw conclusions from observations grows with experience. But in the case of dental erosion reported to the Second District Dental Society, and in which I reported the use of the micropolariscope in the detection of so-called calcium lacto-phosphate, I said, as already quoted, that it was not a finished investigation, but rather an incomplete sketch



## ITEMS OF INTEREST

or study of a case of erosion. The methods by which I arrived at the conclusion that the crystals found in the saliva under consideration are of so-called calcium lacto-phosphate have already been published; they have been the subject of criticism in the paper of Dr. Hinkins and need not be rehearsed.

Dr. Hinkins criticises the fact that I did not test the saliva of the patient by means of Ewald's delicate test for lactic acid. I find that authorities are of the opinion that the test of Ewald is not characteristic except in the proved absence of certain other compounds, tartaric, citric, malic acids, for example, and the class of organic acids which Dr. Hinkins has found to be the result of fermentation produced by certain mouth bacteria. I did make the Ewald test of the saliva of this case a number of times, but because of the uncertainty in my mind as to its accuracy, under the circumstances I did not report it, as I should have expected someone to call me to account for having placed too much confidence in a test which was known to be open to large chances of error.

As related in the opening paragraph of my ITEMS OF INTEREST paper, I apologized for the absence of my patient on that evening. Let me state in further history of the case, that from that day to this I have never been able to get into contact with the patient again. I have written to him several times. I have sent messages to him, and I have endeavored through his friends to induce him to let me proceed with the investigation of his oral fluids. He has declined, and I have consequently lost sight of him, and have therefore been unable from lack of material to proceed further with the subject except to a very limited extent. I have never since met with another case like it in which the crystals which I believed to be so-called calcium lacto-phosphate appeared in the oral fluids to anything approaching the amount that I observed in the case reported. I have, however, seen a number of cases in which apparently identical crystal forms occurred in the urine, and all these cases were patients suffering from organic disease of the liver, mainly yellow atrophy. In these cases I have detected the presence of lactic acid by Ewald's test, carefully applied with the usual precautions for the elimination of error, and in the course of the study of these urines I endeavored to devise a means for producing a chemical reaction which might be applied to salivas while undergoing observation under the micropolariscope, and I found that if a dilute solution of about five to ten per cent. of zinc chlorid were allowed to flow under the cover glass by capillary attraction into the field in which this so-called calcium lacto-phosphate crystals appeared, that in the course of from thirty minutes to one hour a re-crystallization appeared, having all the characteristic appearances of zinc lactate.



It is generally conceded by chemists that the manner of crystal formation, the aggregation of the individual prisms and terminal angles and other optical features of zinc lactate, are so characteristic as to offer one of the very best means for the detection of lactic acid. Having found this reaction to offer encouraging results in the case of the crystals of so-called calcium lacto-phosphate in the urine, I made the same tests with such few of the specimens as I had of the original crystals obtained from the saliva of my erosion case, and obtained the same reaction. I regard this test, while it is not to be considered final, as strong confirmatory evidence of my original conclusion.

**Calcium  
Lacto-phosphate.**

And now as to the so-called calcium lacto-phosphate. A very considerable portion of this paper is devoted to ringing the changes upon my use of that term. I used the term so-called calcium lacto-phosphate, because I was uncertain as to its chemical composition. I was uncertain as to its chemical composition because I could find no literature dealing with the problem of what takes place when calcium phosphate is added to lactic acid, or when lactic acid is added to calcium phosphate. There is a thing which is called calcium lacto-phosphate. It is the basis of a pharmaceutical preparation recognized by the U. S. Pharmacopoeia, and directions are therein given for its preparation. It may be bought from the pharmaceutical chemist. It was recommended prominently some decades ago as a nutrient therapeutic agent, to be administered to women during the period of gestation, for the purpose of restoring in assimilable form the lime salts which were assumed to be lost in large quantities from the osseous system of the mother during the gestation period, and was recommended also as a possible means for preventing what has been called the tooth caries of pregnancy. But nowhere have I been able to find any account of an accurate research undertaken to determine the exact character of this substance which is called calcium lacto-phosphate. I do not know its composition, and I may say frankly that I do not know it now, for what Dr. Hinkins has produced in evidence as to its composition does not to my mind satisfactorily explain it.

I wish to disclaim any proprietary right in the naming of this compound, for the reasons which I have already given, or briefly because the substance is one which received its name probably before most of us were born. I note this disclaimer because the essayist refers several times in his paper to "Dr. Kirk's so-called calcium lacto-phosphate" as a myth. It is certainly not and never was Dr. Kirk's calcium lacto-phosphate.



## ITEMS OF INTEREST

We have been presented with the results of what is apparently a long and painstaking research to determine the nature of this compound in question, and the writer says, as the result of his work, that it is calcium acid lactate. He has shown with much detail the pains which he has taken to secure, in the first place, chemically pure lactic acid of fermentation, and the methods by which he has secured it in the pure state. He has then formed the compound by bringing it into contact under proper conditions with purified calcium phosphate. He has recovered by careful re-crystallization a salt which he determines by analysis to be calcium acid lactate, and he shows by an equation the reaction by which, he thinks, calcium acid lactate is probably formed under the circumstances. To all of which I take not the slightest exception, assuming his hypothesis as to the chemical reaction involved and his analytical methods to be correct, upon which assumption I grant at once that I am unable to see any fault in his general line of reasoning up to this point. But there is one feature which occurs to me in connection with his statement with reference to the relative strength, chemically speaking, of the lactic and phosphoric acids involved. He states in effect that lactic acid has been proved by physical and chemical means to be a fairly strong acid, and is present in considerable excess in these experiments, and further that as strong acids always displace weak ones from their salts, it becomes clear that the above reaction is the one that we should expect.

I infer from the foregoing that he holds the view that lactic acid is a stronger acid than phosphoric. I doubt this as a general proposition, for the reason that under other circumstances phosphoric acid will precipitate calcium from its combination with lactic acid, as always occurs in the making of the official preparation of the so-called syrup of calcium lacto-phosphate. It is one of those cases where the factor of mass action governs the direction in which the precipitation will take place, and I suspect that it is this factor which has given rise to the uncertainty which has existed regarding the chemical nature of the resulting compound formed when calcium phosphate is dissolved in lactic acid. This point, however, has but a minor bearing upon the main question, which I find has been the point to which all of this acid calcium lacto-phosphate discussion leads up to and which is the real point at issue.

Summing up the case to this point, Dr. Hinkins says: "So, when Dr. Kirk says (page 596, *Dental Review*, July, 1905) that 'the committee did not know that lactic acid could not be neutralized by calcium phosphate,' he was in error in regard to his chemistry."

The report of the committee referred to appears in the *Dental Review* of April, 1905, page 321, and among other things a description is there recorded of the method by which the committee had endeavored



to prepare for study crystals of calcium lacto-phosphate, and regarding the method of its preparation the report states: "This was prepared by treating calcium phosphate with lactic acid. After the reaction had taken place, it was diluted with distilled water, boiled, filtered, and set aside to crystalize for one week, at the end of which time, crystals were formed in the syrupy mass, showing the excess of acid used."

It was in relation to this statement that in the criticism of the report referred to I said (*Dental Review*, July 15, 1905): "That was a mistake, and it did not show that an excess of acid had been used, but it does show that the committee did not know that lactic acid could not be neutralized by calcium phosphate." Dr. Hinkins will, I think, admit that there was an evident excess of acid in the mother liquid from which the lactic acid salt was crystalized in the preparation which it is reported, as above, that the committee, of which he was one of the members, made, and I think in view of subsequent research which he has made in order to determine the character of this reaction, he will admit that he still comes out with an acid end-product.

In the performance of this experiment of adding lactic acid to calcium phosphate the result is acid in reaction, either in the first instance from the phosphoric acid set free from combination, or if the compound is redissolved, recrystalized, and freed from the phosphoric acid by washing with ether, and then redissolved, it is still acid from lactic acid. I fail to see that the conclusion arrived at as the result of this long research into the nature of so-called calcium lacto-phosphate destroys the general truth of the assertion, which I assume it was intended to upset, namely, that the committee did not know that calcium phosphate would not neutralize phosphoric acid. As directly bearing upon this point, Miller asserts as the result of his experiments that calcium phosphate added to lactic acid will not diminish the decalcifying power of the lactic acid. Another evidence that lactic acid will not neutralize calcium phosphate.

I have gone over with much care the record of the analyses which Dr. Hinkins gives of this compound, which he designates as calcium acid lactate, and there are a number of features in connection with it which I do not nor can not understand. I am unable to understand what he means, first of all, when, as the result of his analysis, and in spite of all of the excessive care which he seems to have exercised in the preparation of the compound, he makes the statement that "this analytical data, then, shows that the substance is calcium acid lactate, mixed with about ten per cent. of calcium phosphate." If it is mixed with ten per cent. of calcium phosphate, what justification has he for the use of the word "mixed" in connection with the compound? What line of reasoning has led him to decide that this ten per cent. of calcium phosphate is mixed



## ITEMS OF INTEREST

rather than chemically combined with the acid calcium lactate? If this ten per cent. of calcium phosphate occurs in "the substance," would it not seem to indicate that the ten per cent. of calcium phosphate was originally in molecular combination with the calcium acid lactate before he broke up the compound by boiling it, as he has reported, in which event the compound would be the lacto-phosphate rather than the acid lactate?

There is an evident misunderstanding upon the part of Dr. Hinkins as to the meaning of my words, in which in the ITEMS OF INTEREST paper, I have spoken of two classes of erosion. I regret that I have not been able to make my meaning clear to him, for, notwithstanding the fact that I have already endeavored the second time to express my meaning, he nevertheless refers again to the same point and seems to be unable or unwilling to comprehend what I have said.

The original statement, which he has repeatedly called into question, occurs in my ITEMS OF INTEREST paper as follows: "The determination of the solvent in this case and general nature of the disorder, affecting as it does all of the teeth, would seem to make it necessary to divide our erosion cases into two classes—those in which the erosion is general, in which all the surfaces are uniformly involved, in which lactic acid is the solvent acid; and the other class, which is distinctly due to the exudate from an abnormal buccal mucous gland or glands, the acidity of which is due to one of two things, the acid sodium phosphate or the acid calcium phosphate."

I shall endeavor once more to make clear what I have tried to say, and in so doing I would put it in this way: If it be true that lactic acid produced by fermentation in the mouth can be produced in such quantities as to dissolve the mineral salts of the teeth, causing the loss of structure from all of their surfaces, then in that case it would seem to me to be necessary to create a distinct class of erosion cases, distinct from those which I think we can in the present state of our knowledge agree are due to the solvent action of altered mucous secretions from buccal mucous glands. I do not know whether even this will make my meaning clear, but let me say that I never have said that lactic acid was responsible for all cases of general erosion, nor that there are not cases of general erosion caused by other substances than lactic acid. What I want to bring out is the idea that the distinctly different sources of origin for these corrosive or solvent agents which act upon the teeth, producing what we term erosion, would seem to make it necessary to classify them separately with reference to the origin of the solvent involved in the production of the disorder.

In the paragraph which I have quoted from my ITEMS OF INTEREST



paper, as above, I have used the phrase "the determination of the solvent in this case." I can readily see that from his point of view Dr. Hinkins has attached a larger meaning, a more technical meaning, to that term, and given it a greater force of application than was in my mind at the time that I used it. If I had used the word "detection," instead of the word "determination," it would perhaps have expressed more clearly the thought that was in my mind. In its strict sense I quite well understand that the word determination in this connection may be understood to have the force or the meaning of the word demonstration, and yet either of these words may be used with a certain degree of relative applicability, according to the circumstances. To my own mind and as the result of my own studies of the case that I referred to, I was convinced that the salts which I found in the saliva of this case were lactic acid salts. I am still of that opinion. On the other hand, from the point of view of the doubter, I can see that he may have given to this phrase a more literal meaning than I intended to express.

I have made no claim to having solved the great problem of erosion at a stroke of the pen; the utmost that I have done has been to make an effort to attract attention to some of the aspects of this disorder and to call attention also to a method of study which I firmly believe, if sympathetically pursued in the spirit of constructive instead of destructive criticism, will yet be found to be an aid of very great value and importance in assisting this work. I concede the very great value of the work which Dr. Hinkins is doing by quite other methods, and its importance also in bringing to bear additional light on this complex question. It is my earnest desire not to even appear to be in an attitude of antagonism toward him or his colleagues associated with him, but rather to co-operate with him and to encourage to the best of my ability his most praiseworthy efforts.

**Photographs  
of Crystals.**

With regard to the exhibit of photographs of crystal forms, I have to say first, that they are photographs, and that very fact at once eliminates their value as representative of what one sees under the micropolariscope. Secondly, they are for the most part made from specimens prepared by a wholly different technique from that pursued by me and illustrated in my paper which is criticised by Dr. Hinkins. The difference in technique is that, for the most part, Dr. Hinkins's specimens are of slow crystallizations, not made under the cover glass of a microscopic slide, while a number of his pictures are reproductions of photographic reproductions that have been previously printed as book illustrations. The evident intent of the whole exhibit as I interpret it is to prove the contention that there exists great dissimilarity in the forms of



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crystals, and that because of this dissimilarity, it is scientifically impossible to accurately determine the nature of a crystalline chemical compound by means of the micropolariscope. I admit fully the fact that there exists great dissimilarity in crystalline forms, that these may vary almost infinitely according to the nature of the compound and the conditions under which the crystals are produced and studied, and Dr. Hinkins is quite welcome to all the comfort which that admission may give him. But recognizing that very fact in the beginning, I set about it to see if it were not possible to eliminate certain of these differences by reducing the conditions of observation to a degree of uniformity and as a prerequisite adopting a uniform technique for preparing specimens for observation. In his exhibit Dr. Hinkins shows the opposite intent of including rather than eliminating the points of difference, and no attempt at uniformity of technique is made; on the contrary, he has strained at the very opposite of uniformity by presenting a heterogeneous jumble of pictures of preparations made in different ways, photographed under dissimilar optical conditions, by polarized light and ordinary light, reflected and transmitted, along with ordinary photographs of book illustrations. All of which, whatever may be the value and significance of the individual illustrations, they are when taken collectively utterly worthless as a comparative exhibit of the optical properties or crystallographic forms of the substances in question as seen under the micropolariscope.

Besides which his designations are misleading and erroneous in certain instances. Figure 26 is described as a "single crystal of calcium acid lactate in ordinary arc light." This is an error; it is not a "single crystal," but an agglomerated mass of crystals. The same is true of Fig. 27; Fig. 33 is described as "round crystals of zinc lactate." There is no such thing known to science as a round crystal of zinc lactate or a round crystal of anything; if a thing is round it is not a crystal. Figure 34 is said to be a photograph by "ordinary light," while Fig. 35 is the same substance by "polarized light," whereas as a matter of fact Figs. 34, 35 and 36 are all by polarized light, as is proven by the black background and light figures, the optical reverse of Fig. 37, which is by ordinary light, as stated.

Finally, in regard to Dr. Hinkins's chemical experiment of adding sodium carbonate to a hot solution of dihydrogen sodium phosphate, and producing thereby a copious evolution of carbon dioxide, I can only say that I am astounded that he would have the temerity to make such an exhibit in these latter days as an attempted refutation of the reaction that I have offered as accounting for the production of acid sodium phosphate in the human body. Some years ago I was of the same opinion



as Dr. Hinkins upon this point, and I believe I am, fortunately or unfortunately, on record for that belief in Burchard's "Pathology and Therapeutics," but I have learned better with the passage of time, and if Dr. Hinkins will take the trouble to study the existing views as to the causation of the acidity of the urine, which we know is due to this same acid sodium phosphate, he will become very much enlightened on the question to which his experiment is supposed to apply. The theory of the conversion of the alkaline into the acid phosphate of sodium by the agency of carbonic acid is not my own, but is that generally held by physiologists and physiological chemists at the present time. I have merely shown that when produced in excess it is eliminated by other structures than the kidneys, and among these other structures the buccal mucous glands, and in that way it contributes to the production of erosion. The same principle is involved in the conversion of the basic into the acid phosphate of calcium.

Finally, I would suggest in this connection that what takes place in the human body in the matter of chemical mutations is quite another and different affair from the chemical activities that may be exhibited in an aqueous solution in a glass beaker at 100 degrees centigrade.

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### **A Plea for More Thoroughness in Diagnosis, More Conscientious Operative Work, and a Closer Application to Our Dental Literature.**

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By G. W. COCHRAN, D.D.S., Erie, Penn.

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A resume of 1906 dental literature in our many most excellent journals (of which seven are received monthly by the writer) reminds one of the many varied subjects that have been covered by the respective "authors." We should all feel that we have been greatly endowed with knowledge from great fountainheads.

There are, no doubt, just as good men practicing dentistry to-day who have never appeared before a society with a paper, or even in print with original contributions. Delving into the depths of science requires time and many busy practitioners do not feel that they can make this sacrifice. Those who are sufficiently charitable to sacrifice their valuable time with contributions and a desire to enlighten every one who may read them are entitled to special praise. By all means give us an abundance of original papers in our many magazines.



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Just what proportion of dental practitioners subscribe for, carefully read, properly digest and assimilate the many most excellent scientific papers that are being published monthly in our various magazines is highly problematical.

The writer observes that one of our leading publications claims some seventeen thousand monthly circulation; many dentists, no doubt, subscribe for more than one journal. If the rank and file of dentists would take two or three good dental periodicals monthly, read and study them as they should be studied in order to properly assimilate what they contain, I venture an assertion that there would be a great awakening of the profession and the public, but more especially among the medical profession. Then, and not till then will they think we are truly stomatologists.

Judging from clinical experience as cases come under one's observation every calendar month, many dentists (and not a few physicians) are woefully weak in correct diagnosis, or if they have arrived at a correct exposition of their cases, they display a mighty show of indifference as to their ability to eradicate the abnormal conditions for their patients or else so many people would not be obliged to seek others for relief.

This paper is written in the most friendly spirit, with malice toward none; but in order to make it effective, we purpose to pull the throttle wide open, and assume a rather radical pace throughout its course, so much so, that the writer is fearful the wise Editor will look at it through his "specs" with considerable doubt as to the propriety of giving it space in his valuable magazine.

Getting back to our subject again, we say some dentists (mind you, not all) will treat, and treat, and continue to treat lame teeth and jaw complications, and being unable to cure the afflictions for their patient, would rather see the patient lose the tooth or teeth, than recommend him to some one who can relieve him, and in cases of jaw complications, would apparently prefer to see the unfortunate individual pass into the undertaker's hands rather than honorably acknowledge their inability to properly treat the condition and recommend the afflicted one to a practitioner who might be able to diagnose the case correctly and straightway afford relief.

### **A Case of False Diagnosis.**

A slight digression for amusement's sake. Once upon a time a lady suffered most excruciating reflex odontalgia that took up its abode in the left gasserian ganglion. She doctored with the family physician for neuralgia for some ten days, and during this ten-day period had been advised to consult her dentist for possible tooth complications. She



was told by two different dentists (good ones, too) that her condition was plain neuralgia and would require time to wear off (a heap of consolation to one in such agony and pain). So depressed was she, that she remarked that death would be welcome in preference to a continuation of the excruciating pain she had endured in close successive paroxysms for more than a week. Her family physician had gone his limit with the use of opiates, and was conscientious enough to frankly acknowledge he was at his wits end as to what to recommend. He felt that her condition was one that required the services of a nerve specialist, and recommended going to a big town and consulting one. Wise council prevailed and relief was sought for and obtained before trying the nerve specialist. Upon first examination the roots of a first left upper molar (off level with the gum tissue) presented for consideration; also the left upper cuspid contained a large cement plug; pulp had died and this tooth had been tapped to relieve a decomposed pulp; the canal had remained open for some four years, and was nourishing a blind alveolar abscess. Most diagnosticians would have been quite sure this particular tooth's condition was in itself sufficient cause for all the pain and suffering—but not so—pain of the character this patient had endured is very seldom found associated with alveolar abscess. Further search revealed a left lower second bicuspid, which when the pulp canal was explored, produced a shock that reached the left gasserian ganglion and made the patient almost frantic for a few minutes. A chloroform compress was immediately placed over the ganglion region and cocaine was hurriedly placed in the cavity of the tooth, and in less than ten minutes all pain had disappeared entirely. The pulp was extirpated under pressure anesthesia, being partially dead, due to exposure.

Decomposing pulps in teeth and calcific formations or pulp nodules, are a prolific source of reflex disturbances of the character this patient suffered, *but alveolar abscess never.*

The writer thinks that practitioners who so far forget their professional duty toward their patient, as to plod along and jeopardize the individual's health rather than recommend him to some one who can diagnose and straightway afford relief, are guilty of unprofessional acts far greater in magnitude than many of our other unethical irregularities.

Again the writer has seen alveolar abscess conditions that were treated for a long period and the patient's health gradually and rapidly being undermined with a true alveolar necrosis, the results of a former alveolar abscess, and while this practitioner was unable to effect a cure after some two years sinus treatment, he was not sufficiently honorable to admit his inability to cure the lesion, but permitted his patient to suffer until she



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became so depleted she was forced to seek the services of another who did know how to properly diagnose her condition and eradicate the necrosis completely, and thus restore her to good health.

This particular case was a right upper lateral incisor supporting a Bonwill porcelain crown which was adjusted by Dr. Bonwill, and had seen seven years' service. The tooth unfortunately developed an alveolar abscess. It had been treated through the sinus for a long time. Eventually the sinus disappeared, but the tooth with the firmly adjusted crown continued lame. Patient's general health became impaired; took on every evidence of a general neurasthenia, a marked debilitated condition, restless nights, loss of mental activities; in fact, her condition was assuming proportions that were causing her intimate friends to fear for the worst.

The alveolar pus sack had thoroughly decomposed and true alveolar necrosis had been in existence for more than a year; the necrosis had extended through into the floor of the nasal chamber, and in this manner was Nature taking care of the drainage, and this accounted for the absence or disappearance of the former sinus. The gradual systemic disturbance was due directly to absorption of pus via the cancellated bone structure; the discharge of pus from necrosis is not so profuse as with softer tissues, but is of a far more virulent character, more on the order of mephitic gas, conceded by chemists to be the most poisonous gas known to chemistry.

### **Pulp Mummification Condensed.**

Many dentists blunder along treating teeth containing considerable calcific deposit or pulp nodules, and in lieu of having sufficient energy to clean out the constricted pulp canals and fill them properly, they would rather content themselves with the lazy and indifferent operator's method and trust to mummifying pastes to maintain quiescence. Now this is all wrong—what are the results of such methods? Simply this, the mummifying paste spends its germicidal properties; in a year or two bacteria commence to propagate; and an alveolar abscess is sure to result unless the tooth is opened for the escape of mephitic gas and pus-micro-organisms through the apical foramen. Having opened a few dozen teeth that had been treated with mummifying paste, the writer knows whereof he speaks. With a 20 per cent. solution of sulphuric acid, there is precious little excuse for such practice. I dare say, millions of multi-rooted teeth are consigned to the forceps annually, due solely to lack of thoroughness in mastering canal treatment and filling. It requires considerable will-power to work over multi-rooted teeth for three hours (more or less), constricted pulp canals and pulp nodules to contend with, and to find at the terminal end canals of normal size. Operators who

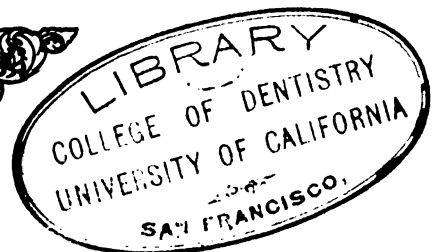


are thorough in this particular will surely agree with me on this point at least.

Now the moral of this much neglected canal treatment is simply this: these unfilled canals in this class of calcified teeth containing pulp nodules, exostosed roots with obtuse and right-angle curves, are bound to cause serious trouble. I say without much fear of contradiction that this class of teeth are the main cause of fully 98 per cent. of all the neuralgic and reflex odontalgia disturbances about the jaws and face.

Reflex odontalgia that locates in the gasserian ganglion disturbs one's equilibrium faster than any pain the writer knows. Why neglect thoroughness in our pulp canal work when we are cognizant of these proven clinical facts? Unfilled canals in any tooth sooner or later develop alveolar abscess, and no wise practitioner that knows anything at all about the surgical treatment of chronic or incipient alveolar abscess, would think for one minute of scooping out an infected pocket at the apex of a tooth, and not be positive in his own mind as to the exact interior condition of said tooth. If he does attempt surgical procedure upon such teeth his efforts will be rewarded with nothing but a series of failures. Far better is it to remove the old canal fillings unless you are positive of the skill of the previous operator.

Twelve years of clinical experience suggests the following advice. By all means make sure your canals are properly enlarged, so they can be well filled. Keep an accurate record of all canal work; and any canals that you find entirely obliterated in the molar teeth, make special record of. In the future should any tooth develop an alveolar abscess, treat surgically by making a free opening at the infected portion, curette away the pus sack, excise a portion of the root, irrigate with a good anti-septic solution, pack the pocket with 5 per cent. iodoform gauze, maintain daily treatments for two or three weeks permitting granulation from bottom outward, observing throughout the whole procedure thorough surgical cleanliness, and your tooth will get well.







## **American Society of Orthodontists.**

### **Discussion of Dr. Pullen's Paper.**

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I regret that Dr. Angle is not here to discuss this **Dr. Alfred P. Rogers.** very interesting paper. I shall try, however, to present a few ideas from my own experience which may be of value. I believe it is well to emphasize the great importance of retention; because so many have become interested in orthodontia and have allowed those prominent features of art and occlusion to occupy their minds to at least the partial exclusion of this very important feature. Many general practitioners are interested in this work, some failing utterly to appreciate the value or necessity of proper retention. The glowing features of treatment have occupied their attention almost exclusively, and cases are undertaken and treated with absolutely no attention given to retention, which, if not understood and properly applied, renders the work worse than worthless, because our efforts have been spent in vain, and months or years of valuable time wasted.

In order to bring the subject of retention clearly before the profession, it seems to me that we must agree upon certain definite principles, just as we do in the treatment of malocclusion. Dr. Pullen very wisely referred to the age problem, and I am going to emphasize what he has said by insisting that we shall commence treatment in the early stages, if necessary in the temporary set, guiding the permanent teeth gently into their proper places; then when they erupt the interlocking of the cusps affords an efficient and permanent retention. Multitudinous movements to



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which the teeth are subjected in pronounced cases makes the matter of anchorage during retention a subject to tax our most careful and sincere thought.

The idea presented by Dr. Abell regarding the restoration of spaces for teeth not yet erupted appeals to me, because in the establishment of retention we sometimes realize the fact that greater growth will take place for the admission of the teeth that are to come; therefore in placing retainers where the anterior teeth have been moved into occlusion and the first molar is in position, the lingual wire should be so constructed that it may be stretched to give ample room for the bicuspid and cuspid to come later.

It is undoubtedly true that we learn most through our failures. This idea calls to my mind a case of the third class which I once treated, in which the entire upper arch was in lingual occlusion with a lingual tipping of the molars and bicuspid of the lower arch, although the arch was of normal size. The restoration of occlusion was accomplished and the upper arch which was greatly expanded was retained by means of a rubber plate, which was kept in position for eighteen months, but gradually with the settling of occlusion the lower arch showed still greater expansion until the upper teeth were again slightly in lingual occlusion although they had not changed their position. This shows the great force of the inclined planes and how important it is that they should be placed and retained in their correct positions. This case was a partial failure, but it carries with it a valuable lesson.

In the retention of the second-class cases Dr. Howe of Boston spoke to me of a very efficient aid in dealing with these cases. The idea was to band the lower bicuspid, attaching thereto a spur extending between the inclined planes of the upper cuspid and first bicuspid. Regarding the retainer for which Dr. Lourie is given credit, I would like to say that I have elevated anterior teeth and retained them in this manner, but have noticed that sometimes the molars have tipped slightly, allowing the anterior teeth to settle slightly. This may be overcome by extending a spur between the cusps of the second bicuspid, making its attachment on the molar band.

Where the upper incisors have needed to be considerably depressed in their sockets, I have re-enforced the molar anchorage by attaching to the first bicuspid as well.

I think that would be an efficient means, myself.

**Dr. Rogers.** There are men here of very much more experience, and I should like to give way to them for the further discussion of this paper.

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## ITEMS OF INTEREST

**Dr. Abell.** I have found we need more room for the permanent bicuspid and cuspid than we have between the first permanent molar and permanent lateral. The temporary teeth do not allow of enough space.

**Dr. Young.** I have measured a great many teeth, and am satisfied that the combined widths of the deciduous cuspid and molars is sufficient to accommodate the cuspid and the bicuspid when they come in; that is by actual measurements in hundredths of an inch, and I believe Drs. Hawley and Watson will bear me out.

**Dr. Hawley.** I think Dr. Young is right. The second temporary molar, as you know, is considerably wider than the second bicuspid; also the permanent cuspid is wider than the temporary cuspid. So you have one permanent tooth wider than the temporary, and one temporary tooth wider than the permanent one, but there is very little difference in their combined widths, where I have measured. I think it just about adjusts itself, if the temporary teeth are normal. It would be safer of course, if there were a few hundredths of an inch greater space than needed, and in most cases there is.

**Dr. Ottolengui.** When you have first molars in place, and your four incisors erupted, that portion of the bone is usually full grown; otherwise we would be obliged to take into consideration the question of whether there would be an additional space between the first molars and lateral incisors for the accommodation of these teeth. Evidently these gentlemen think not, because they are simply measuring the temporary teeth and expect the permanent teeth to fill the same gap.

There is this fact: that the second teeth erupt in a little larger circle, and consequently there is a little additional space gained in that way.

**Dr. Baker.** It seems to me that you are getting this question of space down pretty fine.

What is the objection to getting all the space you need and even more? It does no harm, for as soon as your teeth are in place the other teeth will settle right back until they are held by contact. It is my rule to carry the teeth a little beyond sufficient space to bring the teeth into line.

**Dr. Abell.** This very point has been one I have experienced much trouble with, and I believe Dr. Baker is right in what he says about gaining a little more room. Sometimes if we try to retain the incisor teeth in that position, we will have more or less space, and this afternoon I want to show you in my



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clinic a little device I have used to allow for the settling back of those teeth without changing the retention.

**Dr. Ulskk.** From the few cases I have made measurements of, I have found that the combined widths of the first and second temporary molars and the canine is more than the combined width of their permanent successors. We know that if the temporary molars are prematurely lost, the first permanent molar moves forward. This movement also occurs in the few months elapsing between the loss of the second temporary molar and the eruption of the second premolar. The greater width of the temporary teeth, as compared with the width of the permanent successors, would seem to be to allow for this encroachment on the space by the forward moving first permanent molar.

**Dr. Henry H. Baker.** Although the title of Dr. Pullen's paper is on retention he said very little about retaining fully corrected dentures, and it is on this line that I would like to say a few words. I have given retention a great deal of serious thought and there are a few points that I have discovered in my thirty-five years' practice which are of vital importance. First, that it is more difficult to retain teeth without injury to them than it is to bring them into their proper position.

Second, it is very desirable that retainers should be so made that the corrected cases will improve during the period of retention, and not move in the wrong direction, for the reason that it is about impossible to regulate so that all teeth will be in perfect occlusion at the time of putting the retainers on.

Third, that portion of the retainers that rests against the teeth should cover as small a surface as possible to prevent the accumulation of secretions, hence lessening liabilities of decay.

Fourth, it is very desirable to have retainers made so as to be adjustable by the operator with as few number of bands as possible around the teeth.

Fifth, that it is not wise to have removable retainers for the reason that the patient is apt to remove them too often and leave them out too long at a time.

Probably the most common as well as the most undesirable retainer is a rubber plate fitted closely around the teeth. This to my mind is the most injurious of anything that could be used, especially for young children. Not but that they hold the teeth in position, but the injury they cause to the teeth is the objection. I have seen teeth nearly ruined from decay by this use.



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Last, but not least, retainers should be so made that as little as possible should be visible and that portion that is exposed not unattractive.

I wish to throw out a suggestion. Dr. Pullen  
**Dr. Ottolengui.** raises the point that it is always a question as to how long retention should be continued. A good solution for all cases is this: Begin the retention with a fixed appliance in practically all cases, and when you think you can dispense with that appliance, to be worn at least every night, and I usually say to the girls "wear it until you get married."

I desire to commend what the doctor has said  
**Dr. Varney E. Barnes.** on early regulation. Early regulation is one of the greatest factors in retention. Our best retainer has been said to be the permanent alveolar bone. To go a step further I would say that the best retainer is the first alveolar bone deposited about the tooth. In order to get this we should begin our regulation before the eruption of the lower central incisors. This means the regulation of temporary teeth, and the mechanical production of spaces that should have been growth spaces. Many orthodontia cases are shown as corrected when they are not; the full interapical spaces have not been restored. We get this space best by early regulation, that is, by doing what nature did not do. Many of our cases do not retain because we depend too much on the alveolar bone about the incisor teeth. This is the weakest alveolar structure in the mouth and we have been calling upon it to do too much.

I have been studying the development in temporary arches, and have come to some conclusions, which I shall quote from an article in the *Dentist's Magazine*, December, 1906. "Many observations taken in the past four or five years seem to indicate that in the normal temporary dentition in a child of about four or five years, the following law prevails:

"The central plus space distal to it equals the width of the permanent central. The lateral plus the space distal to it equals the width of the permanent lateral. The cuspid plus the space distal to it equals the width of the permanent cuspid. In some instances the temporary tooth plus the space distal to it may be a little broader than the width of the succeeding permanent tooth, but it is never less, in the normal individual. This law seems to be corroborated by the fact that the first and second temporary molars are succeeded by teeth of less width. The wise intention of Nature being to provide sufficient space for the normal formation and eruption of the permanent teeth, not only the bicuspid and molars, but also the incisors and cuspids, development of the dental arches takes place in the three directions which are of vital significance to orthodontists. These are: The antero-posterior, the buccal and the vertical.



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"The antero-posterior and the vertical developments are not completed entirely until maturity, the third molars marking the completion. The buccal development seems to be complete in the child detention at from four or five years of age, back to the first permanent molar. After that age the development continues along diverging lines permitting the eruption of all of the permanent molars. Too much credit has been given, in the past, to the crowding forces of erupting teeth. This force is really developmental force and must not be expected to accomplish normal results when it, itself, is arrested or entirely suspended.

"The absence of growth spaces between temporary teeth is as surely and definitely an irregularity or deformity as would be the irregularity of the permanent teeth succeeding it."

Dr. Pullen's paper adds more evidence bearing on the difficulties of retention. Dr. Angle presented recently a paper bearing upon the tongue and lip habits in children, which will be taken as an epoch maker in orthodontia when the full significance of these habits is understood.

This matter is one of the things that certainly must be considered hereafter in the retention of a case. Up to the present time it has been scarcely noticed, and yet it must account for many failures, the causes of which have been obscure.

In listening to the subject as it was presented, many things that had puzzled me were made plain. It is almost discouraging to think of these things working against us in the dark, entirely involuntary on the part of the child—unnoticed by the parents, who often are loath to believe when shown, and who underestimate our fears in regard to them; and yet they are most potent forces, working steadily to undo our most careful and thorough treatment.

I have been asked by several for an explanation of the lingual arch retainer, which has been referred to as having been suggested by me. At our Chicago meeting last year I presented the lingual arch as a basis for retention. We select certain teeth as a basis for diagnosis, and in moving the teeth we take the arch as a basis for moving appliances, usually. For the purpose of retention, after trying all the various methods with which I am familiar, I adopted the lingual arch as a basis.

The lingual arch first suggested itself to me in Class II cases, after jumping the occlusion, because the occlusal spur on the buccal side of the molar band had a tendency to tip the molar through increased leverage: also to rotate the molar. I joined the two molars with a lingual arch of irido-platinum. You can use whatever metal answers your purpose best,



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however. I used it because with a low carat of gold solder the stiffness of the metal was not materially altered.

The lingual arch re-enforces the molar retainers, in two ways: it prevents rotation, and tipping. Since this arch was used for re-enforcing those molars, I adopted the plan of retaining other teeth that had been moved, by attaching to this lingual arch. If a central incisor was rotated, I attached it to the lingual arch with a spur hooked over the arch in the way which would antagonize the return to its abnormal position. This attachment can be arranged so as not to prevent lengthening or shortening. I think it vitally important that a tooth should have the possibility of adjusting itself through the influence of occlusion, and I, therefore, avoid rigid attachment as much as possible. We must have some rigidity, however, at times.

If the molar has been rotated during treatment, and one wishes it to settle back to its original position or an improved position, you may transfer the attachment to a bicuspid tooth. Or, the lingual arch retainer can be used for further rotating the molar by adjusting the spring. I sometimes put it on for the purpose of rotating the molar, and at the same time use it as anchorage for moving other teeth.

It has been suggested that it is objectionable to attach directly to the screw of the clamp band. There are some objections to that, and when you find it objectionable the band can be reversed and the lingual arch attached to the opposite end of the screw. Many times you will want to reverse the clamp band anyway, and allow the screw portion to extend back beyond the second molars to keep the second molars expanded.

The lingual arch which is to be attached to the clamp or plain bands, should be made very accurately, and if not sufficiently skilled to solder them properly, you may put them on a plaster model made for the purpose.

In the case suggested by Dr. Rogers, if the incisors have been lengthened or depressed in their sockets they might cause sufficient strain on the lingual arch to tip the molar, because you have the retractive force of the incisors exerted on the molars, with a long lever: so re-enforce with some attachment to the bicuspid or cuspids: use a hook over the arch attached to the tooth, for instance.

I feel thankful to Dr. Lourie for the ideas he has promulgated. I also wish to make due acknowledgments for one other feature of this meeting, which is that each speaker seems to feel himself absolutely free to criticize the essayist as his production is under discussion; so that when Dr. Pullen showed us what he did, it was with great delight I heard the questions asked and his answers. I want to offer him my compliments for showing



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us what he acknowledges was, at least, a partial failure. It is not every fellow that has the courage to do that.

Dr. Pullen left two or three things to be asked, I think. Why does he not, in the cases he shows, push all his teeth out to their proper places in the arches?

I would also like to ask Dr. Pullen why he retains teeth in positions he does not want them to occupy? I refer to the case in which he said the fixtures made it look as though the laterals were too far lingually.

Dr. Hawley, in showing us how to plot a dental arch from the measurement of one, two, or three teeth, has but adapted himself to the conditions of nature, and when he and Dr. Young agree that the temporary molar teeth are just the size of the permanent ones which are to replace them—I have no doubt they are correct. At the same time I should feel like doing what Dr. Rogers said we must do: "we must take our patients before the temporary teeth are all lost." I think he is quite correct: but how are we to get them? Every now and then a sixteen to twenty year old patient comes along, and inquires, "Am I too late?" Dr. Ainsworth says he has done something for patients up to the age of 48 or 49 years, and now I believe Dr. Baker speaks of a case wherein the patient was 62! It is of the greatest importance, as I see it, that we should undertake these cases long before the permanent teeth are in place, so that the attachment or adjustment of fixtures may be attended to without danger of injury to the permanent teeth. I prefer the use of bands, ligatures, etc., upon the deciduous teeth to their application to the permanent ones.

I can not see why Dr. Hawley's plan will not admit of sufficient enlargement of the temporary row too, because the same force which operates *in utero* for the formation of the upper jaw, will operate afterward to reduce the jaw if it is too large.

Dr. J. Smith Dodge asked many years ago how long should a tooth which has been moved from malposition, be retained? Dr. Ottolengui undertook to answer that question, but he was jesting. I hoped he might say that the teeth should be kept there until the entire occlusion was restored. In fact the worst teeth to get out of order are the six lower front teeth: if these are kept right and proper articulation is had with reference to the others, bicuspid and molars, they will stay.

I have been much pleased with this discussion, because it has brought up so many valuable points in our every-day practice. Retention is one of our most difficult fields, and we have much to learn, and it will take years to discover all there is to know about it.

**Dr. Pullen.**



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I must agree with those who have spoken of over-expansion of the arches. It is our common procedure to move the teeth further than we want them. Another thing, we must give Nature a chance for development, in our retention. In many instances we are not through with our cases at retention: not for years afterward, although we may receive our fee when the retaining appliance is put on.

One case Dr. Bogue mentioned, if you will remember, where the upper lateral incisors were in lingual occlusion and were moved into position. I moved those teeth out. The retention afterward was simply to hold through a developmental stage. That particular case needs more work done on it after a certain period of development. I have held it now eight months. It is not a finished case, but there has been development, and it is one of the most interesting cases I have ever undertaken. The watching during that period of that development of the process and anterior part of the arch, has been most interesting. Another thing Dr. Bogue mentioned, to which I referred: How long should the teeth be retained? The occlusion is important always, as we all know. I would limit the influence that occlusion would have in those cases, to simple cases and to special cases, because we do not believe that in extreme cases the occlusion would ever hold them unless they are first retained a very long time. If retained until the inclined planes are in correct position, you might succeed.

I would like to compliment Dr. Lourie on the points he brought out in connection with the lingual arch. With its use I have enjoyed the retention of Class II and III cases better than ever before. The points he brought out this morning are just the ones we need in our every-day work: to know how to overcome the difficulties that are coming up all the time in connection with the lingual arch.

I was pleased to have Dr. Hawley, who has spent much time and study on measurements of the normal arch, bring out the points he did as to the space occupied by the deciduous cuspids and molars being sufficient for the permanent teeth.







## **The Retention of Teeth in the Jaws.**

By A. W. HARLAN, M.D., D.D.S., New York.  
*Read before the Central Dental Association, January, 1907.*

It goes without saying that the first duty of a dentist is to prevent disease of the soft tissues of the mouth, and prevent the loss of teeth by repairing them when carious, or when they are damaged by accident.

It is not my intention to speak to-night about the filling of teeth, by inlays, or metal fillings, nor is it my wish to enter into the details of uniting teeth by the use of bridges or bars set into teeth, but I intend to speak of the retention of teeth in the jaws by the practice of conservative operative dental surgery.

### **The Arthur System Condemned.**

The most fascinating branch of dental surgery to me is that phase of practice which permits of the use of finely tempered delicate instruments within and around the roots of teeth. I was early impressed with the imperative necessity of possessing instruments suited to operating within the roots and around them. When the Arthur System of prevention of decay of teeth was first published, I was opposed to it, and have been to this day. The disks and cones which came with that system have caused more disease of the gums than almost any other agency (misapplied by the dental engine) in practice during the years from 1872 to 1890.

There are many persons now living whose teeth were mutilated and misused during these few years, by disks and cone-shaped steel and corundum points, to their sorrow since their teeth were operated upon.

### **Diagnostic Examination.**

In a diagnosis, it is my invariable rule to examine every tooth; first for vitality, second for caries, third for deposits on the roots, and fourth to note the number of teeth in the jaws.



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Teeth are to be considered as a whole, for purpose of use, but they are to be treated singly, in order to maintain them in a state suitable for retention in the jaws.

To retain teeth in the jaws during life is a difficult task. If it were not, there would not be such a demand for special dental knowledge. This necessity is growing faster than the supply of men especially instructed and educated, and in consequence there are many toothless persons now, where there should be only a few per thousand.

Every day I see middle-aged people, and even those under middle age, with teeth lost which might have been saved by the intelligent practice of conservative dental surgery.

By the aid of electricity, we can see through the teeth and jaws with such ease that there is no longer an excuse for having flattened and nodulated deposits on the roots or between them. We can even determine when the bony sockets are carious or necrotic, or when there are growths upon the roots or within them, or growths over the apices of roots. In a short period any dental surgeon may so acquaint himself with the variations from health of the gums, normal to abnormal, that his services will be invaluable. Every portion of the neck of a tooth and its root must be examined with delicate probes, fine parafined silk and the electric light to ascertain the exact conditions.

The fingers must be trained so that the most delicate operations may be performed upon the roots, as nearly in the field of vision as possible. Compressed air is always an aid in keeping the field of operation clear of blood and debris. When teeth are sensitive to touch, a course of massage with magnesia or soda for a short period (two weeks) is always advisable.

The malocclusions of teeth must be corrected by grinding, and teeth which have no antagonists must be provided with them or they will be lost. No pocket or pouch alongside a root must be left to be filled with food or other foreign matter; it must be cut or scraped out or burnt, so that the tooth can be kept clean.

It is better to have the gum fit closely around the neck of a tooth, even though it only covers one-half of it, than to leave a place to be filled with decayed and decaying matter.

All the teeth that are filled by inlaying or filling, should be contoured to protect the interproximal gum tissue. There are no exceptions to this rule. All crowns and abutments should be so fitted that the interproximal space should not be impinged upon, otherwise even in a short period there will be developed pockets for the further destruction of the periosteum. These are so difficult to treat, after they are once developed, that the



integrity of the gum tissue may be impaired to such a degree that it never becomes normal again.

Erosions of the teeth and abrasions of the ends of teeth are treated mechanically or by the administration of drugs, which may correct or modify the secretions. Poisons collecting in the alimentary tract through lack of ingestion of a sufficient quantity of pure water are to be treated by flushing the system with water and eliminating smoked and pickled meats and fish from the diet.

The greatest care on the part of the dental surgeon will not retain the teeth in the mouth of a patient without a full co-operation of the patient himself.

The teeth must be kept clean, even if you must see them every week or every month. This is a matter of training. The mere rinsing of the mouth once or twice per day with any kind of a mouth wash will not keep the teeth clean. They must be scrubbed and rubbed and rinsed as carefully as the hands are washed. The interspaces must be cleaned and kept free from food.

Any person who is a mouth-breather, desiring to keep his teeth, must have his nose opened, so that the air will be taken in and expelled through that organ.

In attempting to retain the teeth in the jaws, you must take a real personal interest in the matter. All teeth having abscesses, blind or otherwise, must be so treated that they will give the minimum of discomfort to their owners. If it is a necessity to amputate a portion of a root, do it. Conservatism here is needed, as many teeth are lost in a short period by pathological processes.

**Use of the  
Blue Light.**

I have no new theory to offer you to-night with reference to treatment of morbid conditions of the gums, but I will say this: I have been able to disperse thickened areas of gum tissue about the ends and over the sides of the roots of teeth, pulpless teeth, by the use of the concentrated blue light. In these cases an exposure of from two to five minutes daily has been all that they required. I hold the lamp within from one-quarter to one-half inch from the gum, always having the room darkened. If the heat is too intense, I suspend operations for a minute or two and resume.

The most rigid cleanliness that I can obtain is maintained during the treatments and in the intervals. As a preliminary to these treatments, when there are pockets alongside the roots, I wash out all the debris and inject them with a solution of:



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|                       |          |
|-----------------------|----------|
| B Alumnoi .....       | gr. viij |
| Oil Betula .....      | min. iij |
| Distilled Water ..... | min. xc  |

I place a cotton roll inside and outside the arch, and let the medicine stay in the pocket one or two minutes. The next day I use the blue light, and so on daily for two weeks, or longer, if necessary.

Loose teeth can be retained in the jaws for long periods if the hygiene of the mouth is good and the teeth are fastened to each other so that there will not be too much movement in their sockets.

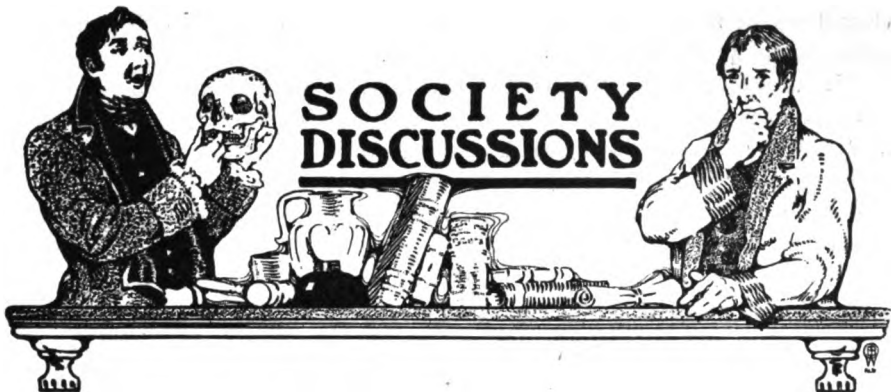
### Value of Oral Hygiene.

All teeth that are lame and sore to the touch must be restored to health by operations, usually within the roots, and after they are filled, by further massage of the gums and exercise. Nearly all teeth not being exercised are useless.

Teeth can not be retained in the jaws for a long period if there are pieces of roots adjacent to them periodically inflamed and infected. Mal-formed teeth, not exercised, should be extracted for the benefit of those remaining in the mouth. If the roots of teeth are made clean above and below the gum line, and all foreign matter is removed by a strong syringe and compressed air, I deem it good practice to thoroughly irrigate the interior of the pockets and pouches by using a ten per cent. solution of mono-chloracetic acid in each pocket.

I always use fine twilled silk between the teeth, to detect any ragged or rough deposits on the sides of the roots, drawing it gently, and as high as the gum will permit, and pulling it down slowly, so that some portions of the silk will be obstructed if anything remains on the root. It does not matter how much time you spend on the teeth, if you do not remove all deposits on the roots the gums will not become reattached, nor will they become normal in appearance. They will bleed, and a nest for microbes is established for the production of pus. I regard the integrity of the gums as the first requisite in retention of teeth in the jaws, and the maintenance of the mucous membrane of the mouth, nose and pharynx as next in importance. Every man must choose for himself the rules for beginning operations on the teeth or gums and try to put himself in the position of the patient. All of the books and periodicals necessary to learn the views of others should be studied and digested to the end that the latest discoveries in science and surgery may be utilized to make prophylaxis real, not a fad.





### **Second District Dental Society.**

A regular meeting of the Second District Dental Society was held in Medical Library Hall, Bedford Avenue, in the Borough of Brooklyn, on Monday evening, October 8, 1906.

The meeting was called to order at 8.30 o'clock p. m. by the president, Dr. Ash.

The secretary read the minutes of the last meeting, and on motion, duly seconded, they were approved as read.

President Ash then read the following address:

#### **President's Address.**

Fellow members of the Second District Society:

I appreciate the honor of being your president and assure you that I shall keep my best energies on tap for the good of the society.

As we meet together on this, our thirty-eighth anniversary, we must feel that we have much to be thankful for, recalling as we do, the terrible disaster which occurred to our fellow dentists in San Francisco. We will never know what hardships they have endured and will endure; but we have the satisfaction of knowing that the dental fund, which helped to relieve some of their sufferings, was started within the membership of the Second District. The hearty response with which that appeal was met is evidence of the feeling of fraternalism which is rapidly taking root in our profession.

Our society has had a very successful year in every way, the circle of our membership being unbroken, except as we have opened to receive new members.

But if our society is to progress, we must look forward to a still more prosperous year. Progress can best be achieved by unity of action; and it



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should not be necessary to urge any one to share in the work, for this is *your* society as much as it is any one's else.

Your executive committee has prepared an interesting and instructive program for the winter; but we need more than that to be successful. There may be ever so eloquent a speaker for the evening, but if he has no one to talk to, the meeting *must* be a dismal failure. It behooves you, therefore, gentlemen of the Second District, to regularly attend the meetings of the society.

Some men say, "Why, I can stay at home and read all the papers after they are published." Yes; but you do not. You subscribe to the dental journals? Surely; but how much of them do you read? Just those articles which catch your eye as you "run over the pages." Do you set apart one or two evenings each month to read dental magazines? Do you? If you do, you are the same men who set apart certain other nights of each month to attend *dental* meetings.

**Encouragement  
of Young  
Graduates.**      Gentlemen, the society *needs you*, but not more than *you* need the *society*.  
Our membership is not increasing as rapidly as it should, considering the number of new graduates who come within our territory each year.

There should be a committee for the purpose of getting after these men and bringing them into the society. Such a committee could keep informed through the Register's office of each county of the name and address of every man who registers each month, and should see those new men and bring them right in. I would be in favor of charging no initiation fee to the men who apply for membership within one year of their graduation. The result of this would be that nearly every young graduate who came among us would join the society (especially if invited to do so), and would thus get started right; and a right start means much toward keeping a man up to ethical standards.

**Fraternal  
Relations.**      There are men in our society who have been members for years and who still do not know each others names. This should not be, and I propose this year that in order to assist in overcoming this condition, a person on taking the floor shall announce his name, to be repeated by the chairman of the meeting. This will help us to learn the names; but we should know each other, and it is the duty of the older members of ten, twenty or thirty years' standing to greet the younger men and make them feel at home.

Is this too much trouble? It should not be. You, too, were a beginner once, and I would beg of you not to let your accumulated wisdom cause you to forget the time when you were grateful to some older practitioner



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for a practical suggestion as to some little method which he had used successfully for years, and which, if you even heard of it in your college lectures, you could not recall, with the mass of knowledge which one is supposed to absorb in three years.

Let us have our hand always ready, not for the petty "graft" which is so commonly sought, but for the purpose of helping our fellow dentist, and thereby let us make life worth the living.

The purpose of our society is the advancement of our profession. How much have you done to advance it? Are you like a sponge, absorbing everything and giving up nothing, unless it is squeezed out? Or are you like the sun's rays, absorbing the moisture from one place, only to give it back again where it will do the most good? Give it up, I say! It is not yours, anyway. You have merely the right to use it, but no right to monopolize it. It is yours only by the grace of our predecessors. Take from your practice what they have given you and there would not be enough left to make a respectable shadow.

We should never let pass an opportunity to show our gratitude to our predecessors for what they have done for us, and should never lose a chance to show our appreciation. In this connection there are one or two matters to which I wish to call your attention.

### **Kingsley's Bust of Christ.**

Dr. Norman W. Kingsley was one of the greatest artists our profession ever saw, and it was always his endeavor to instil into the minds of his fellow dentists that dentistry should be studied as an *art*.

His artistic endeavors were not confined to dentistry, as many of you know who have seen his wonderful work. One of the most beautiful pieces he ever did was a life-size marble bust of the Christ. If you stand and gaze attentively at the face for a few minutes, the cold marble seems imbued with life. There is a movement on foot for the purchase, by the dental profession, of this extremely valuable piece, that it may be preserved in one of our galleries. When the matter is presented to you, as it will be in the near future, I bespeak for it your hearty co-operation.

### **The Jarvie Banquet.**

Another matter of which I wish to speak is the retirement from practice of our dear friend, Dr. William Jarvie. Few societies are honored by having a member who can stand with Dr. Jarvie in the general esteem which he has won and the many high honors to which he has attained; and it seems a fitting time to show our appreciation by tendering him a complimentary banquet. A number of members of this society had decided that such a banquet should be held; but Dr. Jarvie has so many friends in the profession outside of our society that it is a foregone conclusion that many others would think the same.



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Your president and executive committee, feeling that the privilege of organizing such a banquet should be with our society, thought it necessary to act at once, and have taken the preliminary steps, feeling assured that the matter would have your hearty approval.

There are many things which might have been incorporated in this address: A plea for the best use of the new energies which have been stored up during the vacation period; our ambition to achieve the painless operation and the ideal filling; the progress of dental education, and many other things. But what I wanted to do was simply to point out the one or two vital things which will make for the success of our organization. Put away the little hammers. Stop "knocking" your neighbor because an occasional piece of his work is not up to par. You, too, have put in pieces of work of which you are not entirely proud. In a nutshell, then, be charitable and get together and our success is assured.

The essayist of the evening, Dr. I. J. Wetherbee, of Boston, then read a paper entitled "The Passing of the All-cohesive Gold Filling."

### **The Passing of the All-cohesive Gold Filling.**

The subject of this brief paper is the "Passing of the All-cohesive Gold Filling."

That the "all-cohesive gold filling" is rapidly being eliminated from practice I believe generally to be accepted as a fact. It might be well to say here that by the term "all-cohesive gold" is meant the class of fillings constructed entirely of cohesive gold, whether or not annealed, just prior to use; in the latter case it is referred to as non-cohesive foil, our understanding of this term non-cohesive being that the gold is made absolutely non-cohesive by a process which renders futile any attempt to restore the property of cohesion by subsequent annealing.

A variety of reasons, no doubt, are responsible for the greatly diminished number of all-cohesive gold restorations; there has been the extensive substitution of the plastics (amalgams and cements) in the fields held formerly to belong in a great part to cohesive gold. Though calling for a lesser degree of skill in their manipulation, yet there can be little doubt of the great service they have rendered to operative dentistry.

I will also mention the introduction of the porcelain inlay, in which has been wrought such a wonderful advance in the past few years, that it may be said to have completely superseded gold restoration where its exposure to sight is in the least objectionable. Of more recent date is the appearance of the gold inlay, which has still further restricted the field for cohesive gold operations.



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The general acceptance of these new methods leads me to ask what is to-day the position of the progressive members of the profession toward cohesive gold. Has it or has it not any further sphere of usefulness? Without hesitation I answer this question in the affirmative. I claim for it certain advantages in combination with tin, which to my mind the above-mentioned methods do not possess, the class of cases referred to being the so-termed compound cavities of the bicuspid and molars.

**Tin and Gold.** It is in regard to these cavities that I wish to present to you a few facts on the combination of tin and gold. This combination has been known as the "Shumway Method." I do not know whether you

have seen Dr. Shumway's treatment here in New York. Unfortunately, he is not with us to-night and is not now in active practice, as he has had a stroke of paralysis. I will describe the method briefly, and then I will have you take the specimens that I have brought here and examine them. One of them is a filling by Dr. Shumway that was put in about eight years ago, which shows this remarkable affinity between tin and gold. There is very little cutting of the tooth structure; in fact, there are no undercuts of any kind under his system. I have gone ahead and used the groove to secure the cohesive gold. About three-fourths of the entire filling consists of tin. There is an inner layer of from six to twelve thicknesses of foil to prevent the showing of the tin in the teeth. On this matrix the tin is forced. It is condensed by the heated point of a plugger, and it is remarkable the degree of hardness you can obtain by that method. In fact, after a filling of this kind has been in for several years, if you undertake to remove it or have occasion to cut into it, you find the surface very hard.

**A Member.** I would like to ask Dr. Wetherbee what kind of tin he uses and in what form?

**Dr. Wetherbee.** The tin used is a No. 4 foil, any of the different makes. The trouble in all, or a great many, of the tin operations, is that the tin is not chemically pure, and it has frequently been attempted to use tin without the rubber dam. It must be operated in a dry field, or it is absolutely sure to not succeed. No. 4 chemically pure tin is the kind I use. It is foil-folded down to narrow shape or stripes.

### Discussion.

**Dr. Ottolengui.** I take partial exception to one statement made. I am afraid that the essayist's statement must be taken with some allowance, where he says that the all-cohesive gold filling is passing away, or that it is passing quite in the way the essayist has set forth. For example, he pointed out that the por-



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celain inlay is displacing gold, and now that the gold inlay has come, the gold inlay is displacing the cohesive filling to some extent. I prophesy that in those places where cohesive gold now ought to be used, if you use porcelain or gold, you will have failure. I think that the inlay of either porcelain or gold has displaced something else than gold. I believe that the principal place for porcelain is where originally we used plastics, where we were afraid to put a metal filling because the pulp was so nearly exposed. It does not displace gold in those localities—that is, where the inlay of porcelain is used. It does, of course, displace gold from the standpoint of cosmetics, but that is largely in the front of the mouth. When we come to the gold inlay, it seems to me that we displace amalgam instead of gold. If you could put a good gold filling in, there is really no excuse for putting a gold inlay in; but where you can not put a good cohesive gold filling in and have heretofore been using amalgam, then the gold inlay is a great deal better than an amalgam filling. But there are only a few instances, comparatively speaking, where it is excusable to put in a gold inlay in preference to a perfect gold filling, because I have yet to find a gold inlay that is as good as a gold filling.

I am a thorough convert to the inlay system. I  
**Dr. Van Woert.** may be getting myself into a lot of trouble, but I believe this: that while the inlay system is not perfected by a long way, it is the coming method of filling teeth. I think there are a great many things that we have yet to learn about it before it will be perfected, if, indeed, it ever is; but even in its crude state I believe it is the means of saving many teeth that you cannot save with gold foil or amalgam or anything else. Dr. Ottolengui says that an amalgam filling, as I understand him, is not as good as an inlay. Is that right?

**Dr. Ottolengui.** That is correct.

Well, I disagree with you. I think that a perfectly inserted amalgam filling has yet to be improved on. And I believe another thing, that there is no material used in the dental profession that is so universally abused. Now I am not decrying gold; I am not attacking the principles that have made American dentistry what it is to-day, but I do believe that if amalgam were used with the same degree of skill as gold, it is one of the very best things to preserve the teeth. (Applause.)

A number of years ago—ten or fifteen or twenty—Dr. Ottolengui and I went to Boston, and both of us demonstrated inserting amalgam and cement. Great exception was taken to it at that time; everybody said it was the worst thing we could possibly do. Now, gentlemen, we are coming right back to that in what we are doing to-day in all our inlay work. If you prepare the cavity properly, if you insert the cement properly and



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burnish the amalgam properly, you certainly can not say that the amalgam filling is not better than one inserted without cement. I do not believe you will ever have a failure.

Now, why do inlays, as we put them in to-day, succeed where other things fail? Simply because we have the cement. What is the inlay? Nothing more nor less than the cover to the box; that's all it is, and you are depending upon cement for the maintenance of the weak wall of the tooth, and your amalgam is the cover which protects it from disintegration.

**The President.** We are all very glad to have heard Dr. Van Woert's remarks. Now I want to ask him if he has anything to say about tin and gold.

**Dr. Van Woert.** My experience in that line has been so limited that I have no right to say anything about it. Fifteen or twenty years ago I was very much interested in Dr. Canaday's work, in Albany, and I thought it was very beautiful, but I never was able to get similar results. I was never able to combine tin and gold as successfully as to fill with tin or gold alone. I have seen some most beautiful operations performed by Dr. Canaday years ago. But as an operation for the general practitioner, I do not believe that the average man has the skill to combine the two and obtain the same results that he can with other materials. What we want is something that every man in the profession can get results from, and I do not believe that there are ten per cent. of the men who are present here to-night, or indeed, in the whole city of Greater New York, who can combine tin and gold and get results from it, and good results such as Dr. Canaday or our essayist of this evening. I wish I might.

**Dr. Houghton.** I would like to ask what virtue a gold and tin lined filling has in preference to an amalgam cement lined filling, I would like to inquire, I say, what virtue over a cement lined cavity has a tin lined cavity?

**Dr. Wetherbee.** I am glad to have you bring that question up, that question of amalgam and gold. It is all in the skill you possess, operating with amalgam. If you get a perfect adaptation of your amalgam, you get almost as good a result as you do with tin, but tin is absolutely non-conductive, and has been known for years as the best preservative of tooth structure. We have in Boston several men who are expert with cement and gold, and they can insert a filling of this description and get as good result as with tin and gold. It requires a much higher degree of manipulative skill to operate with tin and gold than it does with cement and gold. I think that tin and gold can be adapted to the manipulative skill of a majority of opera-



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tors, whereas cohesive gold requires in some ways less skill, because if a man has less manipulative skill he can anchor cohesive gold.

Forty or fifty years ago, Mr. Chairman, my uncle  
**Dr. Houghton.** used to fill cavities with tin, and I have seen him preserve teeth even where the tin was not condensed, and after removing those fillings, we found the cavities pretty black, but the dentine was perfectly preserved. I asked that question of Dr. Wetherbee, if there was anything in the virtue of gold and tin that he knew of, because I felt as though there was something in it in view of my experience in the early days.

Some hold that tin forms a chemical compound  
**Dr. Wetherbee.** in the teeth that prevents the recurrence of decay; that there is a chemical composition formed by the oxide of the tin due to the saliva in the mouth. I do not adopt that theory. I think it is merely the adaptation of the tin, because, in my operation there is the non-cohesive gold which protects the teeth from the tin. It is but a short time ago that we had a paper from a number of doctors claiming that tin does not discolor the tooth structure. Your experience of forty years ago, was probably with the use of an impure tin foil.

I think there are a great many members of the  
**Dr. Cohen.** society who remember that Dr. Darby demonstrated the tin operation; he used freshly filed tin, and he claimed that he got more cohesiveness in that form than in any other. He had no use for tin foil and used quite a great deal of force and sometimes used the mallet.

Do you find discoloration after a number of  
**Dr. Engle.** years?

That is guarded against by using non-cohesive  
**Dr. Wetherbee.** gold. A piece of that gold is taken and folded about four to eight times as a matrix, using from eight to sixteen layers against the axial wall and seat.

Do you ever find any change?  
**Dr. Engle.**

I have never found any change.  
**Dr. Wetherbee.**

You say you fill the cavity three-fourths with tin?  
**Dr. Engle.**

Three-fourths to seven-eighths. Externally it is  
**Dr. Wetherbee.** entirely filled with gold.

May I ask the time saved?  
**A Member.**



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**Dr. Wetherbee.** I do not claim that it saves any time. It usually takes longer to put in tin and gold than it does an all gold filling. There are some cases where you can put in a tin and gold filling in less time than it will take you to put in an all-cohesive gold filling. But the idea of time and expense is not the question at all with me; it is a matter of adaptation and the service of tin.

**The Same Member.** I thought you claimed saving of time.

**Dr. Wetherbee.** No, I do not claim that. With an all tin filling you can save time.

**The President.** Gentlemen, this is a very instructive paper of Dr. Wetherbee's. There are very few men here, I think, who know how to use tin, especially in combination with gold. It strikes me also that the men who are known as successful manipulators of tin, or a combination of tin and gold, are all men who are expert operators in other respects—that the men who have advocated this combination of tin and gold, are also expert operators of gold without tin. Really, Dr. Wetherbee, do you not consider that it requires more skill to use the combination of tin and gold?

**Dr. Wetherbee.** I consider that any combination is more difficult than all-cohesive gold. Cohesive gold has been used for years; and now it is giving way as a filling material, to gold and porcelain inlays.

On motion, duly seconded, a vote of thanks was tendered to Dr. Wetherbee; after which, on motion, duly seconded, the meeting adjourned.

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### Central Dental Association of Northern New Jersey, Annual Meeting January, 1907.

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The annual meeting of the Central Dental Association of Northern New Jersey was held at De Jianne's Hall, Central Avenue, Newark, N. J., on Monday evening, January 21, 1907.

The meeting was preceded by a banquet.

At the conclusion of the banquet the president, Dr. Joseph S. Vinson, introduced Dr. A. W. Harlan, of New York, as the essayist of the evening. Dr. Harlan read a paper entitled "The Retention of Teeth in the Jaws."

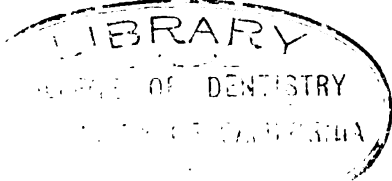


## ITEMS OF INTEREST

### Discussion.

I thought at one time I knew how to clean teeth, but a year ago last summer, when I saw Dr. Harlan cleaning teeth at Asbury Park, it was quite a lesson to me, and any dentist who likes to clean a set of teeth and clean them well, would do well to see Dr. Harlan's clinic on his system of cleansing and particularly his instruments for removing tartar from the teeth. I also saw him use his blue light, and I think Dr. Harlan has demonstrated the success of the blue light.

I am very much interested in this paper, but Dr. S. C. G. Watkins. there is one point which it struck me the doctor should have put greater emphasis on: He speaks of retaining the teeth in the jaws, and then he only gives us his method of retaining them by the aid of cleanliness and massage. Now it seems to me that the chief cause of the loss of American teeth is their lack of use. If people would use their teeth as they should, I believe there would be very little pyorrhea. The people should use their teeth and keep them clean; use them; that is something that probably goes ahead of keeping them clean, because if they are used properly, the natural use of them will keep them clean. If the use of the arm will develop the muscle in the blacksmith or in any other mechanic, surely the use of the teeth will develop the tooth structure. It is simply massage, or gymnastic exercise, as you may term it, which the teeth require in order to bring healthy blood into them; you will thereby have a stronger structure and you will have stronger sockets. You do not see the old sea captain, who has been sailing all his life, having pyorrhea, but you see the surface of his teeth shining like a piece of polished ivory. On the other hand, we see pyorrhea attack the little pet poodle that the ladies pamper with prepared foods, for fear that a little bone may lodge in his throat and choke him. So also with the cat that has been petted and fed in an unnatural way, the same conditions exist; the cat will lose her teeth. On the other hand, look at the farm dog; who ever heard of a farm dog having decayed teeth or a bad breath? I do not think anyone ever heard of such a thing. But take the little dog three or four years old, that is cooped up in a flat, and he has bad breath because he is not fed right; he does not use those organs which are given to him for that special purpose. And if we can only educate our patients to such an extent that they would use their teeth in a proper way, we would have less to do with instruments; less chance to treat pyorrhea.





## SOCIETY DISCUSSIONS

### **Proper Use of a Proper Brush.**

In the brushing of the teeth, I do not think we are half careful enough about instructing our patients how to brush their teeth. The brushing of the teeth is something which requires patience and some skill to brush them properly, and there isn't one patient in a hundred in any practice who brushes his or her teeth properly, and in that way the teeth are neglected and the gums are driven away from the teeth. Often by the very act of brushing, injury is done by irritating the gum, and perhaps allowing food to gather under the gums rather than brushing it away. Then, again, the proper kind of a tooth brush is not used, The ordinary tooth brush is practically useless for the brushing of the teeth; it is not made adaptable to the jaws, to the shape of the teeth, to the contour.

### **A Voice.**

Won't you describe the proper tooth brush, Dr. Watkins?

### **Dr. Watkins.**

That is a joke. If I really thought you were in earnest, I would be only too glad to do it.

### **The Same Voice.**

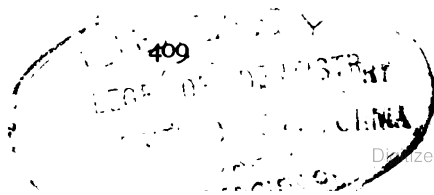
I think that is a proper question. You said most of them were unfit for use.

### **Dr. Watkins.**

I repeat that. In the first place, a tooth brush should be small; a four-rowed or large tooth brush is absolutely useless; it should be small, no more than three rows, and it should not be too long; the bristles should run crosswise; the brush should be so made as to take the contour of the jaw or teeth; it should have a projection or a lump on the end, so as to get around back of the wisdom teeth and the inner surface of the lower and upper teeth, with a proper kind of a handle, so that one place in the mouth could be cleaned exactly as every other place.

### **Dr. Sutphen.**

Mr. President, as I have thought over the subject of the evening, my thoughts have certainly wandered very far from the paper as presented; at the same time, I feel very much gratified that the paper is as it is, and not as I expected it to be. I consider, as the paper laid emphasis, that our function as dentists is to preserve the length of life of the teeth, and I think too little attention is paid to that very subject. For a number of years I have spent two months away from my office in summer, and in the course of the winter, as my patients come back, there has not been a year but that I have felt heartsick sometimes to have one, two or three of my patients come to me reporting suffering while I was away, and that the relief they received had been by extraction; it made me heartsick to think that those teeth should be lost. Why? Because women do not recognize the value of a single tooth; to them the simplest way is



may



## ITEMS OF INTEREST

to have a troublesome tooth extracted. Of course, we all hear less complaint when we take out a tooth giving trouble, and do not take the pains and time necessary to preserve that tooth, and thereby make it comfortable for years and years to come. I was also much pleased with the way our essayist presented his method of examination. I think a great many of us are very superficial in our examination of teeth; we do not think it essential to examine more than the surface of the teeth. How many of us use the electric light in the examination of teeth, and yet by its use we can see things which no probe will bring to our notice; which the eye, unassisted by light, will not detect. Many conditions in the mouth are brought to our attention by the use of light which otherwise would escape us, only to come back months after to give us and the patient very much trouble, whereas a few moments utilized in a proper manner would relieve both the patient and the operator of all serious results. I thoroughly agree with the statement that teeth that are not used should have something made to protect them, so that they could be kept in comfort in the mouth. I think too little attention is paid to that. As far as cleaning the teeth is concerned, it is not a simple operation, and yet how many are there of us who take five or ten minutes to clean a set of teeth? Who can clean teeth in five or ten minutes? Too many of us are not willing to give the time. Pyorrhea is on the increase, and are we not responsible for some of it? Do we do our duty to our patients when we only superficially examine their teeth and when we allow these deposits to crowd the gums, all because it takes a little time and skill, which we are not willing to take or master, in order to thoroughly remove those deposits?

**Dr. Fisher.** I would like to say that Dr. Harlan little knows how closely I watched him the first year I was associated with him, and I can certainly say, in testimony of what Dr. Harlan has done, that I never have seen any more beautiful work than I saw that year. Since that time, especially within the last year, I have not had the time, but any special work that Dr. Harlan has designed, he has had the kindness to let me see, and I must say that cases that I certainly would never have cared to undertake, I have seen him pull through; and if a case has gone to such an extent that he thinks he can not possibly save it with the ordinary mechanical appliances, he will conceive an efficient mechanical appliance; and that is where his accomplishment comes in. Dr. Watkins said something that we all agree with. Non-use of the teeth is no doubt greatly responsible for pyorrheal conditions. But I believe Dr. Watkins went a little too far when he asked who has ever seen a sea captain suffer with pyorrhea. In the same manner allow me to include the old soldier. During my



## SOCIETY DISCUSSIONS

three years experience in the army I paid particular attention looking after pyorrhea, especially after having met Dr. Harlan in the very first few months of that period in the army, and I must say that I found pyorrhea to be prevalent to a greater extent than I would like to admit among the soldiers, who had very coarse fare. So that rule will not work out. The army man has to use his teeth and jaws. So really the non-use of the teeth is not going to extend pyorrhea.

Each man reading a paper takes certain points **Dr. Chas. H. Meeker.** to himself, those points which come within his province in the practice of dentistry. As I listened to the reading of Dr. Harlan's paper, there came back to me the thought of my preceptor, who instilled into me that I must never take out a tooth if I could possibly save it or patch it up in any way. I think he was about twenty years ahead of the profession at that time; he realized the importance of saving the teeth of women. Another one was Dr. Cushing, who made the remark that dentists made magnificent contours and left the necks of teeth like a sewer. Another man was Dr. Barry, who time and time again tried to impress upon the younger members of the profession the importance of saving the teeth, patching them up, not extracting them, even if they did have pyorrhea, even if they were broken down. The fourth man was Dr. Harlan. Another point I want to bring out is from the selfish side. When patients come to us, we naturally expect to fill their teeth where there are cavities, or make artificial teeth, when needed. If we can so educate our patients that they will come to us regularly to have their teeth and gums treated, and impress upon them the idea that our object is to save the teeth and gums in a good healthy condition, do you not see that we add to our practice? Dr. Watkins spoke of seafaring men as not having pyorrhea. I will mention one exception to the general rule; a man who came to me, a seafaring man, about forty years old, who had pyorrhea in a very serious form. I met him accidentally, and got talking to him. He told me about his teeth, and coming to inquire into it more closely, he told me that he had been living on salt fish, and afterward, reading the account of some German scientist, he had made a study of that, and he found that leprosy was caused by the eating of salt fish as a food; so I made up my mind that with the muscular outdoor life he led and the plain simple food he ate, his pyorrhea was due to eating salt fish, and I asked him to stop that and write to me what the result was, but he has never done it. I suppose the writing of letters is a very serious piece of work for a seafaring man.

In line with Dr. Harlan's paper of to-night, a **Dr. Benj. F. Luckey.** most interesting case was presented to my notice in my practice on Saturday. I have thought of it a



## ITEMS OF INTEREST

good deal since, and I think it will interest you all. A gentleman between seventy and seventy-five years of age, of education, an M.D., who graduated many years ago, but who is now and has been for many years engaged in other work in New York City, came to me for some new teeth on account of shrinkage of his gums. On taking out his teeth, he remarked: "You remember that lower plate, doctor, used to have lots of tartar on it?" I said, "Yes, a large portion of it right in front. Where is it?" He said, "I have been taking a medicine for a month or two for a urinary trouble. I am subject to uric acid accumulations and some inflammatory condition of the bladder, but I have noticed since I have been taking this medicine that the incrustation has been gradually disappearing, until now it is entirely gone." I said, "That is interesting; that is what dentists have been looking for for many years; if it will remove tartar from that plate, it will remove it from natural teeth, and tartar we have discovered to be one of the prolific causes of pyorrhea." I asked him what the medicine was, and he said it was eutropeine. He told me some of the ingredients. I asked him if it was in the United States Pharmacopœia, and he said, "I have not looked it up, but it is in the German and French Pharmacopœia." I said, "Would it have injurious effects supposing that one was not afflicted with urinary troubles, as you are, in the administration of it?" And he said, "I do not think it would; it is a solvent of those ingredients of which this tartar is mostly made up." Now, gentlemen, it seems to me that this is one of the most important things that I have heard of in this connection, and I think it is worthy the attention of every one here to investigate and follow up, and if it will do for others what it has certainly done for this gentleman, I think we are nearer a solution of our pyorrhea troubles than we have been at any other time.

In our practice there are cases of pyorrhea in various stages where the teeth get loose enough to be pulled out. I would like to have Dr. Harlan state if he would extract such teeth.

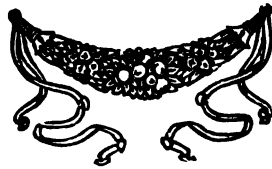
Mr. President and gentlemen: I do not wish to take up much more time, and I will not. Dr. Luckey, in opening the discussion on my paper on food and its relation to the teeth and their sockets, at Asbury Park, said that there was a good deal of quotation and not very much of Harlan. Dr. Watkins, who was not present, I believe, at that meeting, perhaps does not indorse the stress I laid upon the absolute necessity of thorough mastication. I quoted everything from the Koran to the work of Professor Chittenden at Yale College with reference to the value of foods, and I quoted myself with reference to the absolute necessity of



## SOCIETY DISCUSSIONS

using foods that must be masticated. By some chance the *Scientific American* republished that paper and gave fame to the New Jersey State Dental Society, because every advertising agency in the United States for the past few months has been sending me copies of that paper which was read before your society. So it seems that the people of the country will get the benefit of all the authorities there quoted and what I had to say myself as to the necessity of mastication in order to keep the teeth in the jaws.

Dr. Harlan then proceeded to answer in technical language the questions that had been asked him concerning the subject of his paper, and at the conclusion of his remarks was tendered a vote of thanks.







Many dental meetings in the past have proven to be great in name only. From present indications the one to occur at Jamestown promises to reverse this order; announced as a Convention there is every indication that it will eclipse many Congresses. The Committee on Organization wisely eliminated the section method and thus made great and enthusiastic sessions assured by limiting the number of essayists, and arranging that all papers should be read before the entire convention. Of the four essayists chosen the chief of course will be Prof. W. D. Miller of Berlin; the others will deal with vital practical topics. Two special features will be the clinics and the professional exhibits, besides which there will be elaborate displays by manufacturers and dealers.

The Clinic Committee is headed by Dr. Clarence J. Grieves, with five prominent men as assistants, and in addition a special Clinical Chairman in each State in the Union. Thus it is evident that the very best talent in the country will certainly be secured, and the clinical demonstrations should alone repay any man for a trip to Norfolk even though he come from the farthest corner of the continent.



## EDITORIAL

### **Professional Exhibits.**

Several important professional exhibits have been secured. The American Society of Orthodontists has loaned its great collection of Orthodontia casts, first shown at the St. Louis Congress. This exhibit will be in the care of Dr. H. E. Kelsey, who also has the promise of several private collections which will be shown and explained by distinguished orthodontia specialists.

The Committee on History, Dr. Wm. H. Trueman, chairman, and Dr. Charles McManus, secretary, will display a magnificent collection of ancient dental instruments, apparatus, prosthetic and operative work, books, and photographs.

Dr. Wm. H. Bebb, of Los Angeles, chairman of the Committee on Comparative Anatomy, will exhibit his personal collection of over three thousand specimens, one of the rarest in the world.

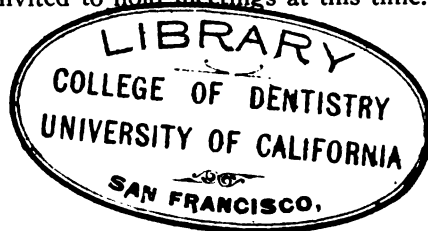
Dr. Richard Grady, dental surgeon of the United States Naval Academy at Annapolis, will exhibit several thousand charts of the mouths of midshipmen showing original conditions and results of treatment.

Dr. John S. Marshall, Chief Dental Surgeon in the Army, will have charge of the Army Dental Corps exhibit.

### **Membership and Hotel Accommodations.**

Dr. F. W. Stiff, 600 E. Grace Street, Richmond, Va., chairman of the Membership Committee, reports applications for membership rapidly accumulating. Membership fee is to be five dollars, which will entitle each member to a bound copy of the proceedings. Bona fide dental students, who forward certificates signed by their college deans, will be accepted as members at half the regular fee.

Hotel headquarters will be at the Inside Inn where reasonable rates and excellent accommodations have been secured. The Inside Inn generously offers numerous halls and committee rooms free for fraternities, alumni associations, etc., who are invited to hold meetings at this time.



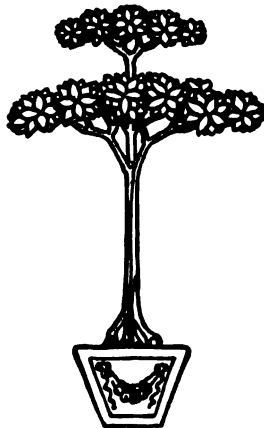


## ITEMS OF INTEREST

### Our Special Porcelain Papers.

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In the last number we quietly began what we may confidently announce as the most important series of papers dealing with the subject of Ceramic Dental Art yet attempted. We have been planning this enterprise for over a year and have only delayed publication until all details could be so perfected that the continuous appearance of the papers could be assured. Various phases of the subject have been allotted to men who are not only experts in the art, but likewise skilled writers. Part First will deal with the filling of teeth with porcelain, and a particular feature will be the perfection of the illustrations of cavity preparations. To this end a splendid set of plaster models of teeth, of large size, have been obtained and every cavity described will be carefully cut in a model, and then photographed for reproduction. The author, Dr. John Quincy Byram, needs no laudatory introduction, his reputation as a porcelain specialist and prosthetic teacher being international.







### **Dr J. Hall Moore.**

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Died at Richmond, Va., Dec. 28, 1906, of heart failure, J. Hall Moore, M.D., in his seventy-fifth year.

Dr. Moore was the son of James Moore, who came from the north of Ireland in 1800, and was one of the first settlers of Washington, D. C., at which place Dr. Moore was born in 1832. Dr. Moore studied dentistry for five years with Drs. Luther Parmele and William Malster, and in 1853 began the practice of his profession.

His medical education was received at Georgetown University. While holding a position in the U. S. Treasury Department, he employed his leisure hours in the practice of dentistry. Dr. Moore moved his residence to Richmond in 1861. He practiced dentistry as opportunity presented, yet much of his time during those four trying years was spent in field and hospital work. Resuming his office duties after the close of the war, he soon became one of the leading practitioners of the city, his clientele being composed of the leading citizens. Being deeply interested in his profession, he was among the first to participate in everything that looked to the elevation of dentistry. In the State Dental Association he was one of the leading spirits, serving three successive terms as president. In the making and framing of the dental law in the State he was an active participant, and after the passage of the law served ten years as president of the State Board of Dental Examiners. For six years he held the position of professor of clinical surgery in the dental department of the Medical College of Virginia and for four years chairman of the dental faculty.

While thus engaged in all the activities of life, chief and uppermost with him was the obligation that he was his brother's keeper, and by his godly life and conversation he stood forth as a living epistle, known and read of all men. By his good works and deeds many will at the last day rise up and call him "blessed."

The Richmond City Dental Society, at a meeting called for the purpose, passed the following resolutions:

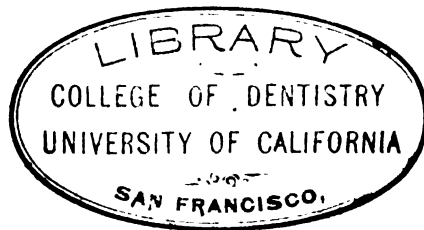
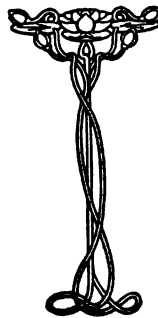


## ITEMS OF INTEREST

"Resolved, That in the removal of Dr. Moore we have indeed lost the companionship of a true and loyal friend, the counsel and advice of one who was truly prepared by long and varied experience to lead most cheerfully, as he did, those of fewer privileges, and that our society has been deprived of the services of one of its most useful members, one whose noble character entitled him to the love and admiration of all.

"Resolved, That we tender to his family our sincerest sympathy in their great affliction; also

"Resolved, That a copy of these resolutions be sent to the family, also to the dental journals and daily papers for publication and that they be spread upon the minutes of this society."







# SOCIETY ANNOUNCEMENTS

## National Society Meetings.

National Association of Dental Examiners,  
Minneapolis, Minn., July 26, 27, 28.

National Dental Association, Minneapolis,  
Minn., July 30.

Jamestown Dental Convention, Norfolk, Va.,  
Sept. 10, 11, 12.

## State Society Meetings.

Alabama Dental Association, Birmingham, May 14, 15, 16, 17.

Arkansas State Dental Association, Eureka Springs, May 29, 30, 31

Colorado State Dental Society, Colorado Springs, June 20, 21, 22.

Florida State Dental Society, Atlantic Beach, June 6, 7, 8.

Georgia State Dental Society, Atlanta, May 7, 8, 9, 10.

Illinois State Dental Society, Quincy, May 14, 15, 16, 17.

Indiana State Dental Association, Indianapolis, June 11, 12, 13.

Iowa State Dental Society, Cedar Rapids, May 7, 8, 9.

Kentucky State Dental Association, Louisville, May 20, 21, 22.

Maine Dental Society, July 16.

Minnesota State Dental Association, Minneapolis, July 30, Aug. 3.

Mississippi Dental Association, Meridian, May 28, 29, 30.

Nebraska State Dental Society, Lincoln, May 21, 22, 23.

New Jersey State Dental Society, Asbury Park, July 17, 18, 19.

New York State Dental Society, Albany, May 10, 11.

Oregon State Dental Association, Portland, May 9, 10, 11.

South Carolina State Dental Association, Anderson.

South Dakota Dental Society, Sioux Falls, June 4, 5, 6.

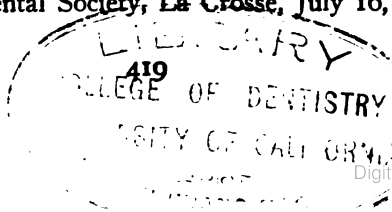
Tennessee State Dental Association, Knoxville, July 9, 10, 11.

Texas State Dental Association, San Antonio, June 13, 14, 15.

Vermont State Dental Society, Burlington, May 15.

Virginia State Dental Association, Jamestown, Sept. 10, 11, 12.

Wisconsin State Dental Society, La Crosse, July 16, 17, 18.



May





## **National Dental Association.**

The eleventh annual session of this Association will be held in Minneapolis July 30, 31, and August 1, 2, when a full programme of essays, demonstrations, and clinics will be presented. Reduced rates on all railways and at hotels will be secured. The largest meeting in the history of the Association is confidently expected. A full programme will appear in July journals.

The following are the officers of the sections and chairmen of clinics and local arrangements.

### **SECTION I.**

D. O. M. LeCron, chairman, Missouri Trust Bldg., St. Louis, Mo.

W. G. Mason, vice-chairman, Tampa, Fla.

E. P. Dameron, secretary, 58 De Menil Bldg., St. Louis, Mo.

### **SECTION II.**

Wm. Crenshaw, chairman, 621 Prudential Bldg., Atlanta, Ga.

John I. Hart, vice-chairman, 118 W. 58th St., New York.

J. J. Sarrazin, secretary, Godchaux Bldg., New Orleans, La.

### **SECTION III.**

Wm. Carr, 35 W. 46th Street, New York.

W. H. G. Logan, vice-chairman, 785 Winthrop Ave., Chicago, Ill.

M. L. Rhein, secretary, 38 E. 61st St., New York.

### **CLINICS.**

E. K. Wedelstaedt, chairman, 204 N. Y. Life Bldg., St. Paul, Minn.

### **SECTION ON INLAYS.**

Walter N. Murray, chairman, 601 Medical Blk., Minneapolis, Minn.

### **LOCAL ARRANGEMENTS.**

F. B. Kremer, chairman, Masonic Temple, Minneapolis, Minn.

Delegates received only from State Societies, but a cordial invitation is extended to all reputable practitioners to attend the meeting.

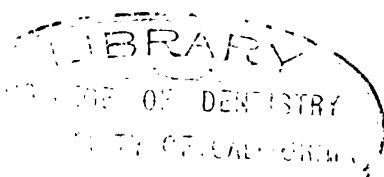
C. S. BUTLER, Secretary,  
267 Elmwood Ave., Buffalo.

A. H. PECK, President.  
92 State St., Chicago.

## **The N. D. A. Clinic.**

There is every indication that there will be a large clinic held in Minneapolis, on July 31 and August 1.

Many men have signified their intention to be present and take part





## SOCIETY ANNOUNCEMENTS

in either the operative work, or else give some kind of a table clinic. If I am to judge from what has been written me then I feel certain that we shall have a most interesting meeting, so far as the clinic is concerned.

In the past there has been some criticism regarding the clinic room being so far away from the headquarters. In no sense is the Clinic Committee to be blamed for this condition of affairs. It must take what is offered or else not have clinical demonstrations. Now, this year there is every assurance that this condition will be materially changed. Dr. F. B. Kremer, the Chairman of the Local Committee of Arrangements, is a man of much experience in dental society work, therefore, he is the very man for the place. He knows what is needed, and, beyond question, he will secure a hall for the clinic room in close proximity to the headquarters. This year, at least, those contemplating being with us need not worry about this special part of the meeting, for Dr. Kremer is a man who does not neglect anything.

From reports which are constantly being received there is every reason to believe that we shall hold a most successful clinic.

The following gentlemen are acting as District and State Chairmen:

For the New England States, Dr. G. E. Savage, Worcester, Mass.; New York, Dr. F. L. Fossume, New York; New Jersey, Delaware, and District of Columbia, Dr. M. F. Finley, Washington, D. C.; Maryland, Dr. C. N. Ginrich, Baltimore, Md.; Virginia and West Virginia, Dr. F. W. Stiff, Richmond, Va.; North and South Carolina and Georgia, Dr. H. H. Johnson, Macon, Ga.; Florida, Alabama, and Mississippi, Dr. A. T. Reeves, Selma, Ala.; Tennessee and Kentucky, Dr. W. M. Slack, Memphis, Tenn.; Pennsylvania, Dr. H. E. Friesell, Pittsburg; Ohio, Dr. H. C. Brown, Columbus; Indiana, Dr. C. D. Lucas, Indianapolis; Illinois, Dr. F. W. Gethro, Chicago; Wisconsin, Dr. S. H. Chase, Madison; Ontario, Manitoba, Dr. K. C. Campbell, Winnipeg.

It is not an easy matter to arrange the programme and I shall be grateful to all the chairmen for their list of clinicians. The earlier the list is sent the better.

New York Life Building,  
St. Paul, Minn.

E. K. WEDELSTAEDT,  
Chairman Clinic Section.

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### **Texas State Dental Association.**

The Texas State Dental Association will hold its meeting for this year in the city of San Antonio, June 13, 14, 15.

G. W. STAPLES, Secretary.





**Jamestown Exposition, Norfolk, Virginia, 1907.**  
**The Jamestown Dental Convention, Norfolk, Virginia, September 10-12th, 1907.**

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COMMITTEE ON ORGANIZATION.

Burton Lee Thorpe, Chairman, St. Louis, Mo.; H. Wood Campbell, secretary, Suffolk, Va.; F. W. Stiff, treasurer, Richmond, Va.; R. H. Walker, Norfolk, Va.; Thos. P. Hinman, Atlanta, Ga.; Clarence J. Grieves, Baltimore, Md.; J. E. Chace, Ocala, Fla.

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The Jamestown Dental Convention will be held in an especially equipped building on the Exposition Grounds, which was built for the purpose of accommodating this convention. The building is equipped with an auditorium, committee rooms, and excellent facilities for conducting dental clinics and for holding exhibits. All of these will be held in this building. The entrance to the building is outside of the grounds. However, one may obtain access to the grounds through it. The building is wired with both direct and alternating current, equipped with running water, well lighted and contains all modern conveniences, thus making it an ideal convention hall. The exhibits are under the management of Dr. John W. Manning, Bank of Commerce Bldg., Norfolk, Va. To him exhibitors should apply at once for space. Price per foot and a plan of the hall will be sent upon request. The clinics are under the supervision and direct control of Dr. C. J. Grieves, Park and Madison Avenues, Baltimore, Md. His assistants are Drs. Baskerville Bridgeforth, Richmond, Va., E. J. Tucker, Roxboro, N. C., Herbert Johnson, Macon, Ga., F. A. Bowles, Washington, D. C., and Joseph T. Meadors, Nashville, Tenn. The prospects are that the Jamestown clinic will be the largest and most complete dental clinic ever held. Assistant clinic chairmen have been appointed in each State in the Union and nearby countries, viz.: Canada, Mexico, Cuba, and Hawaii. From these come reports of the enlistment of the best clinic talent in their respective states and countries. Membership chairmen have been appointed in the various states and countries. Names of these and the clinic chairmen appear with the list of other officers in this issue of this journal. The Membership Committee is headed by Dr. F. W. Stiff, the general chairman, 600 East Grace Street, Richmond, Va., who already reports memberships rapidly coming in. The hotel headquarters will be at the Inside Inn, where reasonable rates and excellent accommodations are assured. The Inside Inn generously offers numerous halls and committee rooms free of charge to the various college fra-



## SOCIETY ANNOUNCEMENTS

ternities and alumni, who are invited to hold their meetings in these rooms. Later reports as to hotel headquarters and prices will appear in a subsequent issue of this journal. The membership fee is five dollars, which will entitle members to a bound copy of the proceedings. A half rate, \$2.50, is made to bona fide students upon certificates from the deans of their colleges, and when presented to the state chairman of the Membership Committee, for endorsement and acceptance, will entitle them to the rights and privileges of the convention. The essayists are to be Prof. W. D. Miller, of Berlin, Germany, Dr. F. T. Van Woert, Brooklyn, N. Y., whose subject is, "Is the Cemented Filling the Filling of the Future?" Dr. Chas. L. Alexander, of Charlotte, N. C., who will present a paper on "Gold Inlay"; and Dr. R. Ottolengui who will discuss "The Angle Method in Orthodontia," illustrated with lantern slides. Dr. E. P. Beadles was elected by the Committee on Organization, in February, to go to Europe and extend a cordial invitation to the dental societies and individual dentists to attend the convention. The following officers were elected by the committee, at its recent meeting, February 23, 1907.

Honorary President—Dr. J. Y. Crawford, Nashville, Tenn.

President—Dr. V. E. Turner, Raleigh, N. C.

First Vice-President—B. Holly Smith, Baltimore, Md.

Secretary-General—Dr. Geo. F. Keesee, Richmond, Va.

Treasurer—Dr. Mark F. Finley, Washington, D. C.

### VICE-PRESIDENTS.

Dr. W. G. Mason, Tampa, Fla.  
 Dr. A. C. McCurdy, Towson, Md.  
 Dr. Edward Eggleston, Richmond, Va.  
 Dr. D. N. Rust, Washington, D. C.  
 Dr. Geo. W. Boynton, Washington, D. C.  
 Dr. J. R. Osborne, Shelby, N. C.  
 Dr. S. H. Johns, Wilmington, Del.  
 Dr. Max M. Eble, Louisville, Ky.  
 Dr. Chas. L. Gunn, Gadsden, Ala.  
 Dr. R. W. Quarles, Van Buren, Ark.  
 Dr. Wm. Crenshaw, Atlanta, Ga.  
 Dr. S. F. Kemp, Key West, Fla.  
 Dr. A. A. McClanahan, Springfield, Tenn.  
 Dr. J. H. E. Milhous, Blackville, S. C.  
 Dr. L. B. McLaurin, Mississippi, La.  
 Dr. F. A. Blanchard, Marksville, La.  
 Dr. R. D. Griffiths, Paris, Texas.  
 Dr. J. D. Patterson, Kansas City, Mo.  
 Dr. O. M. LeCron, St. Louis, Mo.  
 Dr. J. A. Hall, Collinsville, Ala.  
 Dr. T. M. Milam, Little Rock, Ark.  
 Dr. W. E. Norris, Charlottesville, Va.  
 Dr. Wm. M. Bebb, Los Angeles, Cal.  
 Dr. Garrett Newkirk, Pasadena, Cal.  
 Dr. James McManus, Hartford, Conn.  
 Dr. W. W. Evans, Washington, D. C.

Dr. E. K. Wedlestadt, St. Paul, Minn.  
 Dr. A. C. Searl, Onatonna, Minn.  
 Dr. T. M. Hampton, Helena, Mont.  
 Dr. Geo. Longway, Great Falls, Mont.  
 Dr. H. F. King, Fremont, N. H.  
 Dr. Ed. C. Blaisdell, Portsmouth, N. H.  
 Dr. Chas. A. Meeker, Newark, N. J.  
 Dr. R. M. Sanger, Orange, N. J.  
 Dr. H. J. Burkhart, Batavia, N. Y.  
 Dr. R. Ottolengui, New York, N. Y.  
 Dr. Wm. Carr, New York, N. Y.  
 Dr. Geo. H. Wilson, Cleveland, Ohio.  
 Dr. L. C. Custer, Dayton, Ohio.  
 Dr. Norris R. Cox, Portland, Ore.  
 Dr. Arthur W. Chance, Portland, Ore.  
 Dr. Edward C. Kirk, Philadelphia, Pa.  
 Dr. Wilber F. Litch, Philadelphia, Pa.  
 Dr. Edwin T. Darby, Philadelphia, Pa.  
 Dr. H. C. Register, Philadelphia, Pa.  
 Dr. T. T. Moore, Columbia, S. C.  
 Dr. T. T. McClanahan, Nashville, Tenn.  
 Dr. L. G. Noel, Nashville, Tenn.  
 Dr. Pitt S. Turner, Belton, Texas.  
 Dr. John W. David, Corsicana, Texas.  
 Dr. W. Leon Ellerbeck, Salt Lake City, Utah.



## ITEMS OF INTEREST

Dr. L. C. Elkins, St. Augustine, Fla.  
 Dr. H. H. Johnson, Macon, Ga.  
 Dr. G. Edwin Hunt, Indianapolis, Ind.  
 Dr. G. V. Black, Chicago, Ill.  
 Dr. T. W. Brophy, Chicago, Ill.  
 Dr. A. H. Peck, Chicago, Ill.  
 Dr. C. M. Work, Ottumwa, Kan.  
 Dr. Alton H. Thompson, Topeka, Kan.  
 Dr. J. E. Woodward, New Orleans, La.  
 Dr. R. R. Andrews, Cambridge, Mass.  
 Dr. W. E. Barden, Boston, Mass.  
 Dr. Geo. L. Field, Detroit, Mich.

Dr. W. G. Dalrymple, Ogden, Utah.  
 Dr. Chas. F. Irwin, Vancouver, Wash.  
 Dr. G. V. I. Brown, Milwaukee, Wis.  
 Dr. W. A. Cudworth, Milwaukee, Wis.  
 Dr. A. J. Derby, Hawaii, Honolulu.  
 Dr. Andres C. Weber, Havana, Cuba,  
 Corelas, 1 Esq Egidio.  
 Dr. J. Falero, 18 Tacuba, City of Mex-  
 ico, Mexico.  
 Dr. Ricardo Figueroa, 1 Calle de Santo  
 Domingo, No. 8, City of Mexico,  
 Mex.

### GENERAL CLINIC COMMITTEE

Clarence J. Gries, chairman, Park and  
 Madison Aves., Baltimore, Md.  
 Baskerville Bridgeforth, Richmond, Va.  
 E. J. Tucker, Roxboro, N. C.

H. Herbert Johnson, Macon, Ga.  
 F. A. Bowles, Washington, D. C.  
 Joseph T. Meadors, 625 1-2 Church St.,  
 Nashville, Tenn.

### STATE CHAIRMEN OF CLINICS.

Alabama—L. A. Crumley, Hood Bldg.,  
 Birmingham.  
 Arkansas—Chas. Richardson, Fayette-  
 ville.  
 California—Frank L. Platt, 712 Steiner  
 St., San Francisco.  
 Connecticut—Chas. McManus, 80 Pratt  
 St., Hartford.  
 Colorado—W. E. Sinton, El Paso Bldg.,  
 Colorado Springs.  
 Delaware—C. R. Jeffris, New Century  
 Bldg., Wilmington.  
 Dist. of Columbia—H. J. Allen, 303-4  
 Colorado Bldg., Washington.  
 Florida—Carroll H. Frink, Fernandina.  
 Georgia—A. M. Jackson, Macon.  
 Idaho—J. B. Burns, Payette.  
 Indian Territory—S. F. Long, South  
 McAllister.  
 Indiana—Carl D. Lucas, Willoughby  
 Bldg., Indianapolis.  
 Iowa—C. M. Work, Ottumwa.  
 Kansas—Frank O. Hetrick, Ottawa.  
 Kentucky—E. D. Rose, Bowling Green.  
 Louisiana—Jules J. Sarrizan, New Or-  
 leans.  
 Maine—H. A. Kelley, 609 Congress St.,  
 Portland.  
 Maryland, George E. Hardy, Baltimore.  
 Michigan—E. B. Spaulding, 4 Adams  
 Ave., West Detroit.  
 Massachusetts—C. W. Rodgers, Dor-  
 chester.  
 Minnesota—J. W. S. Gallagher, Winona.  
 Mississippi—W. R. Wright, Jackson.  
 Missouri—E. P. Dameron, De Meniel  
 Bldg., St. Louis.  
 Montana—G. E. Longway, Great Falls.  
 Nebraska—H. A. Shannon, Lincoln.

Nevada—J. C. Hennessy, Reno.  
 New Hampshire—John W. Worthen,  
 Concord.  
 New York—Wm. Dwight Tracy, New  
 York City.  
 New Jersey—G. W. F. Holbrook, 2 Say-  
 brook Place, Newark, N. J.  
 North Carolina—J. A. Gorman, Ashville.  
 North Dakota—C. L. Rose, Fargo.  
 Ohio—H. C. Brown, 185 E. State St.,  
 Columbus.  
 Oklahoma—Theodore P. Bringhurst,  
 Shawnee.  
 Oregon—Arthur W. Chance, DeKum  
 Bldg., Portland.  
 Pennsylvania—H. B. McFadden, 3505  
 Hamilton Ave., Philadelphia.  
 Rhode Island—Dennis F. Keefe, 315 But-  
 ler Exchange, Providence.  
 South Carolina—Thomas T. Moore, Jr.,  
 Columbia.  
 South Dakota—E. S. O'Neil, Canton.  
 Tennessee—A. J. Cottrel, Knoxville.  
 Texas—John W. David, Corsicana.  
 Utah—William Leon Ellerbeck, 21 Hoo-  
 per Bldg., Salt Lake City.  
 Vermont—E. O. Blanchard, Randolph.  
 Virginia—R. L. Simpson, Richmond.  
 Washington—C. A. Custer, Chapin  
 Block, Seattle.  
 West Virginia—F. L. Wright, Wheeling.  
 Wisconsin—W. A. Cudworth, Milwau-  
 kee.  
 Mexico—J. Falero, 18 Tacuba, City of  
 Mexico.  
 Cuba—Andres G. Weber, Corelas 1 Esq  
 Egidio, Havana.  
 Hawaii—A. J. Derby, Honolulu.



# SOCIETY ANNOUNCEMENTS

## GENERAL MEMBERSHIP COMMITTEE.

|  |  |
|--|--|
| F. W. Stiff, chairman, 600 East Grace St., Richmond. | William Crenshaw, Atlanta, Ga.               |
| A. S. Melindy, Knoxville, Tenn.                      | M. S. Merchant, Mason Bldg., Houston, Texas. |

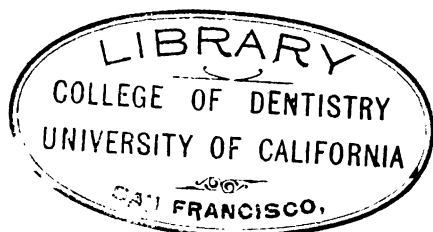
## STATE CHAIRMEN FOR MEMBERSHIP.

|   |   |
|---|---|
| <p>Alabama—C. S. Gunn, Gadsden.<br/>         Arkansas—T. M. Milam, Mann Bldg., Little Rock.<br/>         California—J. Lorenz Pease, Oakland.<br/>         Connecticut—Frederic T. Murless, Jr., Windsor Locks.<br/>         Colorado—Henry F. Hoofman, 612 California Bldg., Denver.<br/>         Delaware—S. H. Johns, Wilmington.<br/>         District of Columbia—William N. Cogan, Washington.<br/>         Florida—F. E. Buck, Jacksonville.<br/>         Georgia—Walter G. Miller, Augusta.<br/>         Idaho—J. H. Lewis, Nez Perce.<br/>         Illinois—Frederick B. Noyes, Stewart Bldg., Chicago.<br/>         Indiana—Frederick R. Henshaw, Middledletown.<br/>         Indian Territory—J. M. Staples, Atoka.<br/>         Iowa—F. T. Breene, Iowa City.<br/>         Kansas—F. C. Corey, Council Grove.<br/>         Kentucky—A. B. Dixon, Glasgow.<br/>         Louisiana—G. Victor Vinges, Macheca Bldg., New Orleans.<br/>         Maine—Will S. Payson, Castine.<br/>         Maryland—W. G. Foster, 9 West Franklin Street, Baltimore.<br/>         Massachusetts—Waldo E. Boardman, 419 Boylston Street, Boston.<br/>         Michigan—Albert L. Le Gro, 271 Woodward Ave., Detroit.<br/>         Minnesota—James Elmer Weirick, St. Paul.<br/>         Missouri—D. O. M. LeCron, Mo. Trust Bldg., St. Louis.</p> | <p>Mississippi—A. E. Tillman, Vicksburg.<br/>         Montana—T. M. Hampton, Helena.<br/>         New Jersey—Alphonse Irwin, Camden.<br/>         Nebraska—E. H. Bruening, Omaha.<br/>         New Hampshire—H. P. Baldwin, Manchester.<br/>         New York—H. Clay Ferris, 1166 Dean St., Brooklyn.<br/>         North Carolina—C. A. Bland, Charlotte.<br/>         Ohio—L. P. Bethel, Columbus.<br/>         Oklahoma—G. L. White, Oklahoma City.<br/>         Oregon—George H. Nottage, Portland.<br/>         Pennsylvania—Howard E. Roberts, 1517 Locust St., Philadelphia.<br/>         Rhode Island—Albert L. Midgley, 312 Butler Exchange, Providence.<br/>         South Carolina—L. P. Dotterer, Charleston.<br/>         South Dakota—C. S. Collins, Vermillion.<br/>         Tennessee—Justin D. Towner, Memphis.<br/>         Texas—Rufus W. Carroll, Beaumont.<br/>         Utah—W. G. Dalrymple, Ogden.<br/>         Vermont—K. L. Cleaves, Montpelier.<br/>         Virginia—Wm. Pilcher, Petersburg.<br/>         Washington—F. J. Shaw, Burke Block, Seattle.<br/>         Wisconsin—W. H. Mueller, Madison.<br/>         Mexico—Ricardo Figueroa, 1 Calle de Santo Domingo, No. 8, City of Mexico.<br/>         Canada—Theodore C. Trigger, St. Thomas, Ontario.<br/>         Hawaii—E. L. Hutchinson, Honolulu.<br/>         West Virginia—Chas. H. Bartlett, Parkersburg.</p> |
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## Michigan State Dental Association.

The annual meeting of the Michigan State Dental Association will be held in Saginaw, June 4 and 5. All ethical practitioners are cordially invited to attend.

L. N. HOGARTH, Secretary.







## **Kentucky State Board of Dental Examiners.**

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The Kentucky State Board of Dental Examiners will meet for the examination of applicants at Louisville, on the fourth of June, 1907, at The Masonic, commencing at nine o'clock.

Each applicant for examination shall be required to deposit with the Secretary of the Board his or her recent photograph, with signature on the reverse side, both of which shall be certified to by the Dean of his or her graduating college, or other parties acceptable to the Board. Applicants must be graduates of reputable dental colleges.

Applicants shall be examined in the following subjects: Anatomy, Physiology, Materia Medica, Pathology, Histology, Operative Dentistry, Oral Surgery, Chemistry, Metallurgy, Prosthetic Dentistry, Crown and Bridge Work and Dental Prophylaxis.

Every applicant shall be required to treat two or more teeth affected with pyorrhea; to insert two gold fillings; two amalgam fillings; impression, bite and articulating teeth of upper and lower denture; one bridge on model, consisting of one shell and one Richmond crown and two porcelain faced dummies; one gold or porcelain inlay or Logan crown, one practical case diagnosis; all to be done before the Board.

A general average of 75 per cent. is required. Applicants will be graded upon a basis of 60 per cent. on practical work and 40 per cent. on theory.

Applicants must come prepared with instruments, engine and material, excepting bellows, blow-pipe, lathe, stones, and polishing cones, to do the above-mentioned work.

The Board would advise the use of gold in the above bridge, as it would cost very little more than German silver after disposing of the bridge.

Application for examination must be made upon blanks furnished by the Board and must be accompanied by a fee of \$20.00.

J. RICHARD WOLLEN, President.

The Masonic, Louisville, Ky.

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## **Illinois State Board of Dental Examiners.**

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The next regular meeting of the Illinois State Board of Dental Examiners for the examination of applicants for a license to practice dentistry in the State of Illinois will be held in Chicago, at the Northwestern Uni-



## SOCIETY ANNOUNCEMENTS

versity Dental School, southeast corner of Lake and Dearborn Streets, beginning Monday, June 3, 1907, at 9 A. M.

Applicants must be in possession of the following requirements in order to be eligible to take the examination: (1) Any person who has been engaged in the actual, legal, and lawful practice of dentistry or dental surgery in some other state or country for five consecutive years just prior to application; or (2) is a graduate of and has a diploma from the faculty of a reputable dental college, school, or dental department of a reputable university; or (3) is a graduate of and has a diploma from the faculty of a reputable medical college or medical department of a reputable university, and possesses the necessary qualifications prescribed by the board.

Candidates will be furnished with proper blanks and such other information as is necessary on application to the secretary. All applications must be filed with the secretary five days prior to the date of examination. The examination fee is twenty (\$20) dollars with the additional fee of five (\$5) dollars for a license. Address all communications to

J. G. REID, D.D.S., Secretary.

1204 Trude Bldg., 67 Wabash Ave., Chicago, Ill.

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### **Vermont State Board of Dental Examiners.**

A meeting of the Vermont State Board of Dental Examiners, for the examination of candidates, will be held at the State House, Montpelier, Vt., Monday, Tuesday, and Wednesday, July 1, 2, and 3, 1907, commencing at 2 o'clock of July 1. All applications, together with the fee, \$25.00, must be in the hands of the Secretary not later than June 23. Application blanks and further information may be obtained from

GEO. F. CHENEY, Secretary.

St. Johnsbury, Vt.

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### **The Kansas State Board of Dental Examiners.**

The Kansas State Board of Dental Examiners will hold their next meeting for examination in Topeka, May 22, 23, 24, 25, 1907, at the Cope-land Hotel annex.

The examination fee is \$25.00 and an additional fee of \$5.00 for a license.



## ITEMS OF INTEREST

Examination is not necessary for a graduate of a reputable dental college. The fee for registering a diploma is \$25.00.

Address all communications to

F. O. HETRICK, Secretary.

Ottawa, Kansas.

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### **Connecticut Dental Commissioners.**

The Dental Commissioners of the State of Connecticut hereby give notice that they will meet at Hartford on Thursday, Friday, and Saturday, June 13, 14, and 15, 1907, to examine applicants for license to practice dentistry, and for the transaction of any other business proper to come before said meeting.

All applicants should apply to the recorder for proper blanks and rules for conducting the examination. Application blanks must be filled in and sworn to, and, with fee, filed with the recorder on or before June 6, 1907. By order of commission.

GILBERT M. GRISWOLD, Recorder.

783 Main Street, Hartford, Conn.

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### **West Virginia State Board of Dental Examiners.**

The West Virginia State Board of Dental Examiners will hold their next meeting for the examination of candidates at Wheeling, West Virginia, June 12, 13, 14, 1907. For further information address

H. M. VAN VOORHIS, Secretary.

Morgantown, W. Va.

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### **Texas Board of Dental Examiners.**

The Texas State Board of Dental Examiners will hold their next annual meeting at San Antonio, Texas, June 10, 1907, at 10 A. M. For further information address

C. C. WEAVER, Secretary.

Hillsboro, Texas.





### **Tennessee Dental Association.**

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The fortieth annual meeting of the Tennessee Dental Association will be held at Knoxville, July 9, 10, 11, 1907. A splendid programme is being arranged by the Executive Committee, and a most cordial welcome extended to all.

R. J. MCGAWCK, Cor. Secretary.

Columbia, Tenn.

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### **Odontotechnique Society of New Jersey.**

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The May meeting of the Odontotechnique Society of New Jersey will be held at Achtel Stetter's, Newark, on Saturday Evening, May 4. The paper of the evening will be read by D. A. Webb, M.D., of Scranton, Pa., president of the Scranton Clinical and Pathological Society. Subject: "Diseases of the Jaws; Malignant Growths, Fractures, etc."

H. J. GIBBINS.

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### **Iowa State Dental Society.**

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The forty-fifth annual meeting of the Iowa State Dental Society, will be held at Cedar Rapids, Iowa, May 7, 8, 9, 1907. A good programme is being arranged. A cordial invitation is extended to the profession.

T. L. TOPLIFF, Secretary.

Decorah, Iowa.

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### **Iowa State Board of Dental Examiners.**

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The Iowa State Board of Dental Examiners will hold its next meeting for examination at Iowa City, June 6, 7, 8, 10, 11, 1907.

To be eligible to this examination the applicant must hold a diploma from a college that is on the accredited list of the National Association of Dental Examiners.

Applicant must state where he attended first, second, and third year of college. Address all communications to

E. D. BROWER, D.D.S., Secretary.

Le Mars, Iowa.





### **New Hampshire Board of Registration in Dentistry.**

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The New Hampshire Board of Registration in Dentistry will hold its next examination of applicants for registration in Manchester, N. H., June 11, 13, 1907.

A. J. SAWYER, Secretary.

Manchester, N. H.

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### **South Carolina State Board of Dental Examiners.**

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The South Carolina State Board of Dental Examiners will meet in annual session at Anderson, S. C., on June 28, 1907, to examine applicants for license.

For further information address

BROOKS RUTLEDGE, Secretary.

Florence, S. C.

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### **Colorado State Dental Society.**

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The annual meeting of the Colorado State Dental Society will be held at Colorado Springs, June 20, 21, 22, 1907.

A good programme is being arranged and a profitable meeting is assured.

An invitation to attend is extended to all ethical dentists, and special efforts will be put forth to make it pleasant for visitors from other states.

The undersigned would be pleased to hear from any who may plan to attend the meeting.

I. C. BROWNLIE,

Chairman of Executive Committee.

404 California Bldg.,  
Denver, Colo.

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### **Florida State Dental Society.**

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The Florida State Dental Society will hold its twenty-fourth annual meeting in the Continental Hotel, at Atlantic Beach, Thursday, June 6, continuing in session three days. All ethical practitioners are cordially invited to attend.

C. H. FRINK, Cor. Secretary.





### **Florida State Board of Dental Examiners.**

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The Florida State Board of Dental Examiners will meet June 3, 1907, at 10 o'clock, in Jacksonville, Fla., for the purpose of examining applicants for license to practice in this State.

In addition to the written examination, applicants will be required to put in one gold filling, one alloy filling, and solder and finish one four-tooth bridge under supervision of Board.

Bring bridge ready for investing. Only graduates of reputable dental schools are admitted to examination.

W. G. MASON, D.D.S., Secretary.

Tampa, Fla.

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### **South Dakota Dental Society.**

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The twenty-fifth annual meeting of the South Dakota Dental Society, will be held in Sioux Falls, June 4, 5, 6.

A most interesting programme has been arranged and we want to see the largest attendance the society has ever had. A larger membership is desired, and every dentist in the State who is eligible should become a member.

A special invitation is extended to southeastern Minnesota and northwestern Iowa dentists to attend.

FERDINAND BROWN, Secretary.

Sioux Falls.

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### **Alumni Society of the Philadelphia Dental College.**

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The Alumni Society of the P. D. C., will celebrate Alumni Day, Friday, May 31, 1907, in the college buildings at 18th and Buttonwood Streets, Philadelphia, Pa. All those dentists interested in this college are cordially invited to be present.

#### **CLINICS.**

At 10 A. M., in the morning, a series of Clinics will be given under the auspices of the Clinic Committee, composed of Dr. C. R. Jeffries, chairman, Drs. Max Greenbaum and W. G. Chase.



## ITEMS OF INTEREST

### BUSINESS MEETING.

At 2:30 P. M. the business meeting of the society will be held in the amphitheater of the college, when Dr. Wm. T. Wyckoff will deliver the presidential address. Dr. L. A. O'Brian, of New York City, will read the annual paper. After the discussion of this paper has taken place, the faculty will have some very interesting dental subjects to present, as well as some college announcements to make of vital importance to the Alumni.

### THE ALUMNI BANQUET.

The annual banquet will take place Friday evening, May 31. An announcement of the time, place, and cost per cover will be made later on. The Banquet Committee, consisting of Dr. W. G. Chase, chairman, Drs. M. F. Quinn and H. Iredell, have full charge and application for seats should be made to them. The trustees, faculty, students, graduating class and alumni will be warmly welcomed at this banquet which will be enlivened by the wit and eloquence of famous speakers.

An unusual feature which will characterize Alumni Day for 1907, is the fact that it will be the last to be held under the old regime. This year the Philadelphia Dental College will enter into a federation with Temple College. There will be an entirely new board of trustees with Dr. Russell H. Conwell as president. Dr. Leo Greenbaum continues as dean, and the faculty remain the same.

ALPHONSO IRWIN, D.D.S., Secretary.

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### University of Pennsylvania Dental Department, Class of 1902.

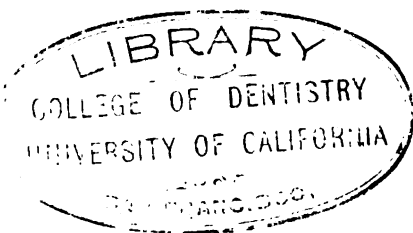
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The fifth annual reunion of the Class of 1902, Dental Department of the University of Pennsylvania, will be held on Alumni Day, Saturday, June 15, 1907.

All are earnestly requested to make an effort to come back to their Alma Mater on that day.

J. ARTHUR STANDEN, Secretary.

1220 Locust Street, Philadelphia, Pa.







## **Advantages and Disadvantages, Indications and Contra-Indications of Porcelain Inlays.\***

By JOHN Q. BYRAM, D.D.S.

Before studying the methods of constructing porcelain inlays, let us consider their advantages and disadvantages, their indications and contra-indications.

The advantages of porcelain as a filling material are:

1. Fillings can be inserted which more nearly harmonize with the natural teeth.
2. Porcelain is a poor conductor of thermal and a non-conductor of electrical changes.
3. The margins of cavities properly filled with porcelain, are not readily attacked by caries.
4. The cement used as a retaining medium causes the filling to have the greatest adhesion of any of the filling materials except cement.
5. The patient is relieved of sitting with the rubber dam adjusted over the mouth for periods of considerable length, and of the pain incident to adjusting the rubber dam and cervical clamps for cavities extending beneath the gum.
6. The nervous strain of both patient and dentist is lessened, thereby relieving the patient of the shock which usually follows long, tedious operations.

\*Copyright, 1907, by Consolidated Dental Manufacturing Company.



## ITEMS OF INTEREST

7. Busy patients need not spend so much time in the dental chair. After the cavity is prepared the matrix may be burnished to the cavity, or an impression of the cavity may be taken, and then the patient dismissed until the inlay is completed.

8. Faulty fillings are easily dislodged. While porcelain has the advantage over gold in making a filling that more nearly harmonizes with the natural teeth, and one that is a non-conductor of thermal and electrical changes, it has still another advantage, which should appeal to all conscientious operators, in that imperfect fillings made of this material are easily dislodged. A large number of faulty gold fillings, which do not preserve the teeth, are retained by deep grooves, so that it is almost impossible to dislodge them; such fillings deceive the patient, and many times even the dentist. If a porcelain filling is faulty, it is displaced, and the patient knows immediately that the services of a dentist are required.

The disadvantages of porcelain as a filling material are:

### Disadvantages of

#### Porcelain.

1. The friability of porcelain causes it to fracture readily, thereby excluding it from any form of cavity that can not be so prepared that frail margins of the filling material can be avoided or else protected from stress.

2. It is impossible to bevel the cavity margins to protect the enamel. The relative strength of the porcelain and the enamel are approximately the same so that one can not protect the other.

3. It is difficult to match the color of the natural teeth. This always has been and always will be one of the most serious disadvantages of porcelain as a filling material. And until we understand more thoroughly the general phenomena of color formation, we may expect to be disappointed with many of our inlays.

4. The cement used as a retaining material may cause a change in the color of the tooth or of the inlay. This, however, may be largely overcome by the application of correct principles in cavity preparation.

5. The cement will dissolve unless there is only a thin film used as the retaining medium. This is not so much a disadvantage to the skillful, painstaking operator; for, if the margins are defective, he will remove the defect by making a new inlay. But to the incompetent or careless operator, this will always be a disadvantage, because any cement now produced will dissolve from the margins of an ill-fitting inlay.

### Applicability of Porcelain.

Porcelain is not applicable to all forms of fillings, and it will never entirely displace gold or amalgam as filling materials. It has taken its place, however, along with these materials, and, when properly applied and judiciously used where indicated, porcelain should



even take first rank as a filling material. Its indications as a filling material may be classified, first, as general, and second, as local. The following will be considered under the first classification:

1. For those patients who really have an appreciation of the esthetic quality of dental operations, and who object to the conspicuousness of metallic fillings. Many patients fancy that they appreciate this quality, but they measure their appreciation rather by the cost and permanency of the work than by an esthetic standard.

2. For those patients whose physical condition is such that the insertion of a large gold filling would give rise to a nervous shock. We should consider the effect of such shock on the system and endeavor to avoid subjecting our patients to long, tedious and painful operations.

3. For those patients whose pericementum and alveolar process are diseased, a condition which almost excludes any material that requires considerable condensation.

4. For those patients who are suffering from caries that has progressed to such an extent that the pulp is almost involved, and in whose teeth the pulp would die, if filled with gold, because of the irritation caused by thermal changes.

The indications under the second classification are:

1. All cavities on the labial and very many on the buccal surfaces of teeth.

2. Some simple approximal cavities on incisors and cuspids.

3. Approximo-incisal cavities, if these cavities can be prepared in such a manner that the retentive resistance will be greater than the stress.

4. Cavities involving the incisal edge.

5. Approximo-occlusal cavities on bicuspid and molars in which the cavities are so prepared that a large enough mass of porcelain may be used to withstand the stress applied, and in which the frail margins will not be exposed to the stress of mastication, or in which the cavity extends far beneath the gingival margin.

6. Deep cavities on the occlusal surface of lower molars.

7. Cavities involving the entire occlusal surface of pulpless molars.

The choice of porcelain is contra-indicated in  
**Contra-Indications.** the following conditions:

1. In those cavities from which the stress will dislodge the filling or cause it to fracture.

2. In those simple approximal cavities on incisors and cuspids in which a gold filling is scarcely noticeable.

3. In disto-occlusal cavities of upper bicuspid and molars.

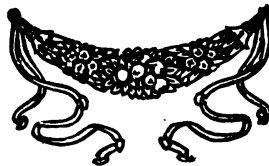
4. In all occlusal cavities on upper molars and those occlusal cavities on lower molars in which severe usage in the process of mastication might cause the margins of the inlay to fracture.



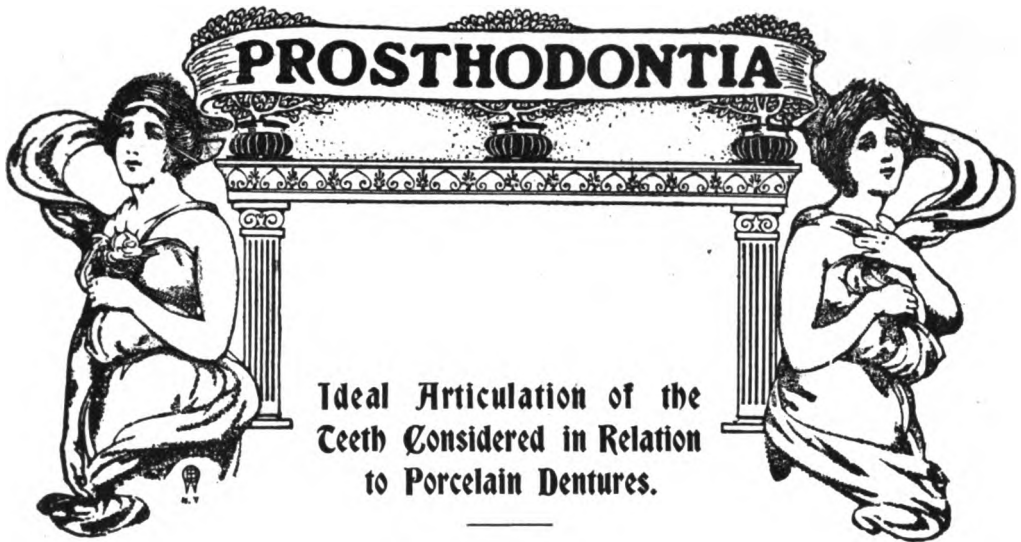
## ITEMS OF INTEREST

While porcelain may be used as a material for filling many cavities in bicuspid and molars with a fair degree of success, it has nevertheless been demonstrated that it is not the safest material to use for filling most of the cavities in these teeth. It should be chosen, therefore, only where the requirements demand it for filling cavities in bicuspid and molars. The dentist who limits his practice to filling cavities in incisors and cuspids with porcelain will probably render his patients better service than the one who promiscuously inserts inlays in all classes of cavities regardless of their indications and contra-indications.

Generally speaking, as the size of the cavities in *vital* incisors and cuspids increases does the indication for porcelain inlays also increase, for if a small gold filling at the gingival margin of an incisor or a cuspid is conspicuous, such a filling in an approximo-incisal cavity is much more noticeable. While there is a limit to the size of a porcelain inlay that may be inserted in an approximo-incisal cavity successfully, there are, nevertheless, too many crowns adjusted upon incisors and cuspids. The comparative ease with which a crown may be adjusted upon these teeth induces many operators to overlook the good qualities of porcelain as a filling material for many large cavities. On the other hand, the decision as to whether an inlay shall be inserted into a particular cavity should be dependent upon the degree of the operator's skill. The prudent operator will not attempt to insert large approximo-incisal inlays, for example, until he has become thoroughly familiar with the methods of cavity preparation and is a master, in a very large degree, of the technique of inlay construction; for the construction of porcelain inlays involves a series of mechanical principles, which must be observed with precision. Failure to apply these principles will cause imperfect fillings. The best work can be accomplished only when the operator possesses a thorough knowledge of the principles of inlay construction, of the properties of porcelain, a mastery of inlay technique, and when the eye is trained to detect the delicate hues of colors.







By DR. STEWART J. SPENCE, Chattanooga, Tenn.

Although nature rarely produces a denture fully in accord with her ideals, yet such ideals exist, and they ought always to be imitated by art, so far as circumstances permit. Instead of the imperfectly shaped and illy articulated teeth which prosthetic dentistry customarily doles out to the public, every plate or bridge that leaves the dental office ought to be perfect according to nature's ideals.

The porcelain incisors and cuspids of commerce are excellent as regards shape, being only not enough flattened at the approximal surfaces, but at the bicuspid the divergence from nature's patterns begins to be marked; and this divergence increases as we proceed posteriorly, until at the position of the third molar there is only a blank. Ordinarily porcelain bicuspid are much too narrow bucco-lingually and their cusps too short and blunt; the second molar is made narrower than the first, instead of wider—bucco-lingually; and the occlusal groove in both bicuspid and molars is not always equidistant throughout its length from the buccal cusps. Yet with all these defects vastly better dentures might be made than—at least, many worn to-day. Many of these are such parodies on nature's beautiful works that they would be comical were they not a profound disgrace to our profession.

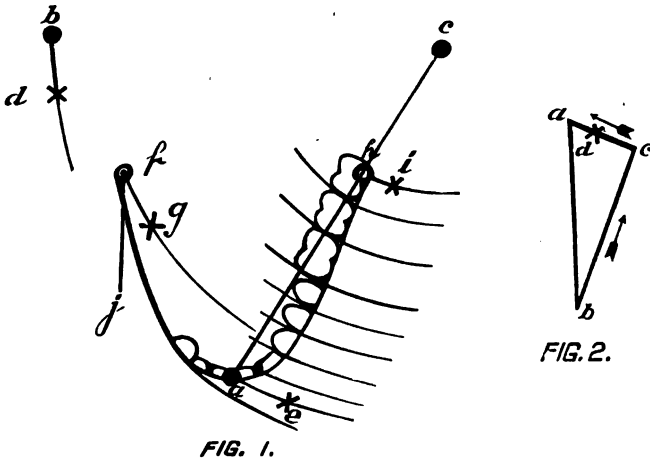
The writer's purpose in this paper is to formulate a few rules for the arrangement and articulation of porcelain teeth, the observance of which would, he believes, revolutionize prosthetic dentistry in this particular.



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But before proceeding to these rules, let us study the various bites. These are three—the vertical bite when used for crushing, the vertical bite when used for incising and the lateral or grinding bite.

The vertical bite, when used alone for mastication, is abnormal. The old time theory that food should be distributed in about equal quantities on each side of the mouth and be crushed by vertical closures ought never to be whispered in our days, unless, perhaps, in connection with



the very aged or those who have lost all lower ridge. Even with the latter of these, long-cusped rather than cusplless teeth ought to be used, because they aid vastly—even with only the vertical bite—in tearing and grinding food; and correctly occluding cusps do not tend to dislodge plates.

The two normal bites are the incising and the lateral. The incising bite is that wherein the lower jaw is protruded until the lower incisors occlude edge to edge with the upper and then glide down them with a shearing action, both condyles moving forward in their sockets. The lateral bite is that in which only one condyle moves forward, the other merely rotating, the entire denture being swung sideward and slightly forward, performing the bite in its return movement.

As we shall have much to consider concerning  
**The Lateral Bite.** this lateral bite, let us obtain a clear conception of it.

Fig. 1 will help to this. Here *a b c* mark the three points of the lower jaw—the two condyles *b* and *c*, and the incisor point *a*. In nature this is usually an equilateral triangle, each side measuring



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about four inches. (The figure is drawn half size.) In making the lateral bite the condyle *b* moves forward, traversing the arc of a circle having *c* for its center. Thus the entire denture is, in differing degrees, carried forward at the time that it is carried sideward. Therefore when the condyle *b* moves out to the mark *d*, the incisor point at *a* will move out to the mark *e* (these movements, being in the same circle, measure the same), and the last buccal cusp on the right side (*f*) will move out to the mark *g*, while the last buccal cusp on the left side (*h*) will be carried to the mark *i*, each traveling in the same time distances differing in proportion to their distances from *c*, the center. For instance, as *f* is twice as far from *c* as is *h*, therefore the distance from *f* to *g* is twice that from *h* to *i*.

The other teeth move proportionately with those above mentioned; those on the left side travel along the slightly diverging, because widening, arcs lying between *h* and *a*, *c* being the center.

Let us now get a clear comprehension of how this lateral bite is made. This is not done by moving the teeth over one another to and fro laterally. It occurs only during the inward, never during the outward, movement of the jaw. It commences by the descent of the jaw, in order to make room for the food to be inserted between the teeth; this insertion is accomplished by the active action of the tongue and the passive pressure of the cheek. It is rarely that any food remains on the other side of the mouth (which in this article we will call the *right* side, supposing, for convenience of description, the lateral bite to be always made on the *left* side), because there the teeth do not occlude in a manner well adapted for mastication; still it is not impossible to eat with food on both sides. In opening, the jaw descends vertically, as shown in Fig. 2 by the line *a b*; for the lateral motion outward is all made during its ascent, from *b* to *c*; from whence it proceeds inward from *c* to *a* in an almost horizontal direction, performing mastication only during this latter part of its journey.

Just how far the jaw is ordinarily swung laterally in eating is hard to calculate, but probably this is not more than half the possible distance, or a little more than the width of a lower incisor.

The inclination of this line *c a* is governed by the steepness of the cusps. When the point *a* of Fig. 1 is at *c* of Fig. 2 then the point *f* of Fig. 1 is at *g* of the same figure, and is (if the correct denture) in occlusion with the palatal cusp of the upper molar located at *g*, from whence it glides down to *f* as the bite proceeds from *c* to *a* of Fig. 2. Thus while mastication is being performed on the left side there is occlusion on the right side, and as there is also occlusion of the condyle with its socket at the same time, it follows that the inclination of the path of the condyle



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is the same as that of the cusps, for if otherwise, contact of one or other would be prevented. The inclination of  $a c$  (Fig. 2), therefore, is that of the lateral bite, of the cusps, and of the temporo-maxillary articulation. (This is said only of normal conditions. As the cusps become worn, and especially as some teeth become lost, the path of the condyle probably changes; so that it is not safe to infer its inclination from some one or two *unworn* teeth that may possibly remain after the others are lost or worn down.)

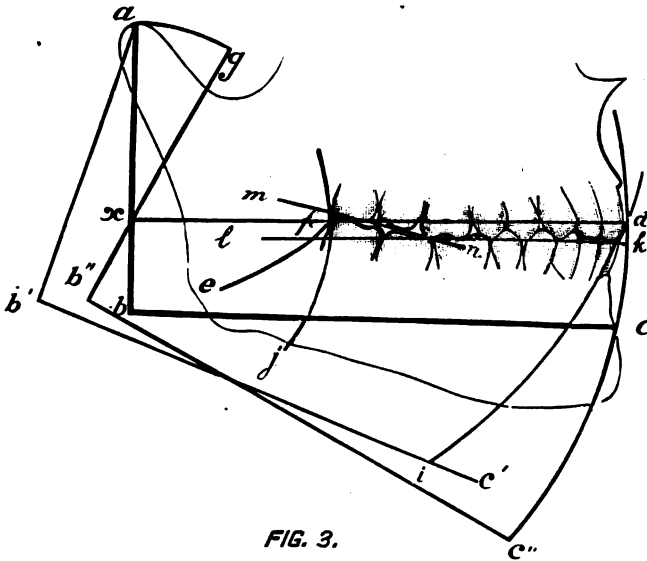


FIG. 3.

We are now ready to consider the rules.

### **Rules for Articulating Artificial Teeth.**

*Rule I. The casts should be set on an articulating frame which gives not only the vertical bite, but also the lateral and the incising bites.*

It is utterly impossible to scientifically adjust porcelain teeth upon an old-style articulator possessed of only the up and down motion; unless, indeed, the teeth are without cusps and over-bite; and even then it is difficult. The Bonwill articulator, or some of its congeners, having the three movements of the human jaw, is a necessity to success.

*Rule II. The casts should be placed on the articulator and the teeth set up so that the occlusal plane of the teeth will be directed to the joints of the articulator.*



## PROSTHODONTIA

Fig. 3 will illustrate this rule. Let  $a b c$  be the lower jaw when closed,  $a$  being the condyle—the joint. Now if the human jaw opened as do most articulators, this line would assume the position when open shown by the line  $a b' c'$ , and the last molar would, in closure of the jaws, come up in the direction shown by the arc  $e f$  (this having  $a$  for its center), which would require that the muscles of mastication be placed much more forward on the upper jaw than they are. The fact is that in nature the condyle  $a$  moves forward along the path  $a g$ , so that the lower jaw when lowered occupies the position of the line  $g x b'' c''$ , or nearly so. This point  $x$  may therefore be considered the veritable joint of the jaw. For convenience of description let us call it the X joint, though perhaps it ought to be called the Kerr joint, Dr. Kerr being, I think, the first to point out these facts. It will be observed that the arc  $j f$ , drawn from this point  $x$ , as center, causes the last molar, when near closure, to ascend virtually vertically.

That this X joint is located somewhere near the place ( $x$ ) shown in the figure, is beyond question; but that it is exactly there is not so certain; therefore I submit my reasons for locating it at precisely this point. And first, as regards its location vertically: (1) a line ( $x d$ ) drawn through the occlusal plane of these teeth (and the jaw and teeth in this figure are a copy of the very perfect denture of a skull, the photograph of which has appeared extensively in the dental journals as an illustration of "typical occlusion of the teeth") touching the lower incisor point and the last buccal cusp of the third molar, leads to the point  $x$ ; and as a line so drawn marks the occlusal plane, and *as the occlusal plane must necessarily be on the same plane as this joint* (as will be explained later), it follows that this point  $x$  must be its correct vertical position, or very nearly so. (2) If this point  $x$  were considerably higher up than it is on the line  $a b$ , then when the jaws were opened the angle  $b$  would be carried much farther backward than it really is; and that this backward movement is slight the reader may readily assure himself by placing his finger on the angle of his ramus and opening his jaws. By then placing his finger three-quarters of an inch higher up the ramus, he will reach a point where it remains virtually stationary while the jaws are opening and closing.

Now as regards the position of  $x$  horizontally: (1) It is here perpendicular to the condyle, which it seems reasonable to suppose it should be, because this makes it the hinge for the lateral bite as well as for the incising bite. If this X joint were placed, say, a half inch inward from  $x$  toward  $d$ , thus making it not perpendicular to the condyle, the mechanics of the jaw would be sorely complicated thereby. (2) The writer tested this matter in his own mouth, by biting into a very thick mass of wax,



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being careful to avoid protrusion of the lower jaw, then measuring from this wax the distance apart of the incisors, then the distance apart of the last molars, adding the overbite to the former; then drawing on paper two lines corresponding to these two measurements, placing them as far apart as said incisors were distant from said molars; then finding how far two other lines intersecting the ends of these first two must extend to come to an angle. This distance was found to be four and one-quarter inches. A second experiment was made, partly to verify the first and partly to see if any difference would result from closing the bite—this latter trial being made with a thin piece of wax. The latter result was four and five-sixteenth inches—an inappreciable variation of one-sixteenth of an inch. And that the measurement went over four inches (the average distance) is accounted for by the fact that the writer's teeth and jaws are somewhat above the average size.

Now to apply these facts: If teeth are set up on an articulator (whether having three motions or only one) with their occlusal plane not pointed as in Rule.II, but directed more or less below the joints of the instrument, the result will be that in the closing of the jaws of the articulator the teeth will travel about in line with the arcs  $ef$  and  $id$  (Fig. 3), and when said teeth are transferred to the mouth they will travel the arcs  $if$  and  $c'd$ , with the result that in both the incising and lateral bites (that is, whenever the teeth occlude with the jaws still somewhat open, not in full occlusion) the lower teeth will in the mouth be more forward than they ought to be by the amount of divergence of the arcs  $di$  and  $d'c'$  at a point from their junction distant the length of the overbite, which in the figure is seen to be about one-eighth of an inch, and the divergence about one-sixteenth of an inch. *This will cause collision of the cusps in passing each other in the lateral bite, and too early occlusion of the last molars in the incising bite.*

At St. Louis Dr. Campion drew attention to the hitherto unobserved fact that for about the first centimeter of separation of the jaws, if the mandible is not protruded while opening or shutting, the condyle does not move forward along its path, but remains in its socket, simply rotating therein; from which he inferred that, seeing that it is only with this first centimeter, or less, that the prosthetic artist has to deal, therefore the old-style articulator is correct as regards the position of the joints, and that models and teeth ought to be set on these frames so that the occlusal plane points below, not toward, the joint. *The doctor mentioned that he was careful to avoid any protrusion of the lower jaw while making his experiments.* I think he overlooked a vital point—that in both the incising and lateral bites the lower jaw is protruded. This fact seems to me to destroy his conclusions.



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Dr. Campion also claimed that his experiments proved that the path of the condyle varies, sometimes descending (as in *a g*, Fig. 3), sometimes being horizontal, and in one instance even ascending. Not only this, but he claimed that it varies in different parts of its path, and is even so erratic as to have no regularity in these variations. This would seem to indicate that the cartilage of the condyle path undergoes changes wrought by undue pressure caused by the wearing away or loss of those molars of the lower jaw on which ought to fall the brunt of pressure. From calculations based on Fig. 3 (but omitted from the figure because they made it look too complicated) the writer found that when the divergence of the path is at its two extremes the space made at the molars by the occlusion of the incisors, or *vice versa*, is about one-thirtieth of an inch—supposing the joint to remain fixed at *x*. If raised above *x* the difference is greater; if dropped below, less.

**Verifying  
Experiments  
Suggested.**

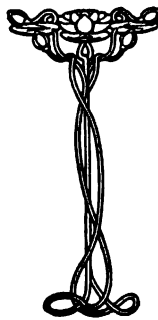
The reader who has a Kerr articulator (this instrument having its condyle path adjustable) can readily demonstrate to himself that the above calculation is about correct; for if he will set the adjustable path at one extreme position, then wax up exactly as in taking the bite, so that the upper and lower planes of wax occlude precisely, and so that their plane points to the joints of the articulator, he will find, if he will then change the adjustment of his path to the opposite extreme, that when the lower wax is protruded about one-eighth of an inch (which is the usual protrusion of the lower jaw in the incising and lateral bites) either the front or back portions of the wax (according to which position the path was in when the wax was carved) will occlude so as to leave the other end of the wax bite spaced about one-thirtieth of an inch. To accomplish this in the mouth of the patient, the dentist may proceed thus: Having carved his wax bite as usual on his trial plates (for this method can be used only with the carved not the "mush bite," and the "True-bite plates" are well adapted for it), and having been careful that the occlusal plane of the wax is perfectly flat throughout and is directed straight to the X joint in the mouth, let him have the patient protrude the lower jaw as far as possible (which is usually about three-eighths of an inch) and let the dentist then, first, mark with a scratch on the wax the extent of this protrusion, and, second, observe how the planes of wax now occlude. If the path of the condyle be parallel to the line of protrusion of jaw, full occlusion will remain, but if the path inclines downward, occlusion will occur only in front. The space thus made at the posterior part may then be gauged by inserting any convenient article, such as a knife blade or carved strip of orangewood, which, after the bite has been removed to the articu-



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lator (which must be done with the plane of wax directed the same as it was in the mouth, that is, to the X joint) may, if there was any posterior space, be reinserted in the wax as a guide by which to adjust the path of the condyle on the articulator. When this path is so set that the knife blade or wood strip fits back into its place in the wax at the same time that the lower jaw of the articulator is protruded as far out as it was by the patient (as indicated by the scratch on the wax), then the path of the articulator will be at the same angle to the occlusal plane as was the path of the condyle in the patient. If there was no space it is simply necessary to adjust the articulator so that their condyle path is on a line with the occlusal plane.

*(To be continued.)*







## **Prophylaxis as Related to Orthodontia.**

By DR. H. C. FERRIS.

*\*Read before the American Society of Orthodontists.*

This theme, while old, seems to have been overlooked in the rapid development of this specialty, or else writers have considered that men sufficiently intelligent to undertake its practice, would use ordinary precautions. However, I make bold to present this subject for your consideration.

Our field of operation is one of low vitality, owing to perverted nature, caused by nasal obstruction in a large percentage of the cases, making mouth breathing a necessity; producing an abnormal development of the mucous tissue of the oral cavity, and air passages. The antiseptic qualities of the nasal mucoid secretions having been lost, the air passes through the mouth and the lungs are laden with bacteria owing to this abnormal action. The hypertrophy of the faucial and pharyngeal tonsils, render them more susceptible to the attacks of all the animal and vegetable bacteria that are found in nature.

The physical condition of these patients due to this abnormal functioning, renders their system less able to resist attacks of bacteria, such as the diplococcus of pneumonia, bacillus of diphtheria, etc.

The accumulation of carbohydrates and proteid substances after each meal, form the best food for nourishment of oral bacteria by clinging to the metallic appliances both stationary and removable, and are with difficulty removed with most careful mechanical means. In most mouths



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the characteristic fermentation occurs after each meal without such appliances; therefore, with them and their accumulating tendencies, this action is proportionately increased. The formation of carbohydrates is accompanied by the production of certain acids of which lactic acid is the chief.

The decomposition of albuminoids results in alkaline reaction. When two are mixed they produce a mild acid reaction, depending to a degree on a particular form of bacteria acting upon the mass, and partly to the nature of the food and the percentage of the carbohydrates in it. According to the percentage of excess of lactic acid formed during the fermentative action of certain oral bacteria on the carbohydrates in the mouth, we find the pathological conditions of the mucous surfaces increased, as a hyper-acid condition of the oral secretions proves to be one of the irritating causes of disease of these tissues, lowering their functioning ability and thereby rendering them more vulnerable to any form of micro-organisms.

Can we afford in our effort to assist nature to establish a normal occlusion, to neglect our hygienic precautions during this process, by placing materials in the oral cavity which increase the surface for accumulation and culture of these organisms, without endeavoring, with the means we have at hand, to reduce the quantity of their reproduction? By bacteriological experiments we learn of the rapid growth of these organisms in the oral cavity, and we find by clinical experience, that the teeth and appliances are rapidly covered with oleaginous substances which become a favorable medium for their culture.

The antiseptic qualities of the copper used in some of these, we appreciate, but we know that colloidal copper which produces this antiseptic action is only given off while the metal is polished and free from albuminoid deposits. So when wires containing this metal are not submerged under the gum tissue, this antiseptic action is soon lost; therefore, we must look to other means for cleansing these surfaces.

Again in the adjustment of wire ligatures, even in the most skilful hands, the operator is apt to puncture the mucous tissue, and as these wires presented to us by the trade are found to be bacteriologically unclean, we are liable to infect this susceptible subject.

We have a few cases on record, one of which was reported to the Second District Dental Society of the State of New York, of tuberculosis in its most virulent form, from the use of a septic dental scaler, which resulted in the death of the patient. The difficulty of tracing these infections to the hands of the dentist, is the reason for fewer reports of this character. Simple methods in technique can in a large extent control such infections.



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If on the contrary, we find that the wires furnished us by the dental supply houses are sterile, they are liable to be infected by handling. The composition put on the market by Dr. E. H. Angle, will frequently give negative bacteriological results, as tube No. 1 will prove. (Demonstrating.)

This bouillon tube was infected by a wire of this make and kept in an incubator in Seney Hospital laboratory under the care of Dr. Dexter, pathologist, and was accompanied by tube No. 2, which contained some of the same bouillon, which was infected with serum from a septic wound, and was introduced into the incubator at the same time as tube No. 1, and developed the culture you see in half the time. This single experiment does not prove these wires all sterile when they reach our hands, and the method of sterilization is so simple that we should run no risk.

### **Sterilization of Ligature Wires.**

By introducing a bundle of wires into a U shaped glass tube, we may sterilize the contents, either by boiling in a saturated solution of sodium carbonate for twenty minutes, introducing a small cork, and allowing them to remain in the solution; or by exposing them to the action of formalin gas for eight hours; or by allowing them to remain in a colloidal copper solution for one hour; or by sterilizing with dry heat. By any of these methods, we may be reasonably sure we have a sterile product. Each method has its advantages and disadvantages. The preference would be given to that of boiling, as it does not require repetition, the solution protecting the wires from oxidation and from re-infection from the air and hands.

### **Mouth Sterilization.**

Our field of operation is the most septic of any cavity in the body, therefore the first step in the technique should be to render the field aseptic.

We first mechanically cleanse the teeth with frictional material, as thoroughly as possible, then spray the parts with antiseptic solutions under high pressure, which will destroy the bacteria present. We have numerous antiseptic agents of varying value, from which we may select one sufficiently powerful to meet the case. The most cleanly patients, naturally present the most healthy tissues; but their susceptibility to infection, owing to the general condition, must be taken into consideration.

To prove this necessity, a wire that had been worn three weeks without prophylactic care was taken from a mouth. It was gently scraped with a sterile platinum loop by the pathologist; the wire was placed in one bouillon tube and the scrapings in another. The former developed no culture, evidently proving the antiseptic qualities of the composition, as



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the surface was enabled to give off colloidal copper. The latter was used to infect another tube which produced a culture. A microscopical slide developed the presence of bacilli, diplococci, and micrococci.

There are solutions that are largely alkaline with little antiseptic value; but the patient's sense of taste must not be considered to their detriment. The solutions which are sufficiently strong in antiseptic value, are not particularly pleasant; but if our efforts be sincere, they must be thorough. There are two drugs which are accepted by our authorities, which we may employ. The first may be used in mild conditions, and consists of:

℞ Trikresol .....m. xxx  
 Oil of Cassia .....m. xx  
 Aq. dis. ad. q. s. ....oz. iv  
 M. Sig. To be used in spray at a temperature of 105 degrees F.

The active principal of this solution is the trikresol, the oil of cassia being used to disguise the disagreeable taste. The former is a clear watery liquid, having three times the disinfecting value of carbolic acid, while it is three times less poisonous, and less caustic; and is composed of ortho-cresol 35 per cent., metro-cresol 40 per cent., and para-cresol 25 per cent. In bacteriological experiments undertaken by Major Walter Reed, Curator of the Army Medical Museum in Washington, he found that a 1 per cent. solution of it accomplished as much as a 4 per cent. or 5 per cent. solution of carbolic acid. It is particularly valuable for our purpose, as it is active in fluids rich in albumen; being neutral in reaction it leaves the metallic surfaces bright. It is also readily soluble in aqueous solutions.

In acute conditions, when we require a stronger antiseptic, we may use a solution composed of:

℞ Iodine .....m. xix  
 Potassium Iodide .....m. xix  
 Aq. dist. ad. q. s. ....oz. iv  
 M. Sig. To be used in spray under high pressure at a temperature of 98 degrees F.

The antiseptic value of iodine has been recognized for centuries. This agent in its powdered form, iodoform and aristol, is a standard in our hospitals. It possesses a quality which produces the destruction of a capsule of the spores that bichloride of mercury does not possess. It has been recently found that the solution of this drug becomes more potent



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when potassium is combined with it, increasing its solubility. The American Pharmacopoeia, of 1906, directs the addition of potassium to all tinctures of this drug. The solution here recommended, when sprayed in the oral cavity, will fix the plaques of bacteria so they may be detected upon the surfaces of the teeth as well as on the appliances. In order to remove these plaques a mixture of

℞ Starch .....dr. iii gr. ii  
Aq. dist. ad. q. s. ....oz. iv

will convert the iodine into an iodide of starch; which is more readily washed off the surfaces with a solution of:

℞ Sodium Carbonate.....gr. xviii  
Oil of Gaultheria .....m. xxx  
Aq. dist. ad. q. s. ....oz. iv  
M. Sig. To be used in temperature of 115 degrees F.

This last solution also tends to free the surfaces of oleaginous matter.

After this treatment we can be reasonably sure that we are working on sterile tissue, and the liability of infecting our patients is reduced to a minimum.

The necessity for sterilizing our hands, using a sterile brush with green soap, and immersing them in an antiseptic solution, preferably 3 per cent. camphenol, which should stand in a bowl within reach of the operator for freeing his hands of mucus during his work; the boiling of pliers, scissors, mouth-mirrors and carriers, between patients, are precautions that no intelligent operator can neglect. Instruments such as lances, scalpels, etc., may be boiled for twenty minutes in glass tubes in a saturated solution of carbonate of soda, and placed in the cabinet ready for use at any time.

The prophylactic treatment at each visit, once a week, requires but fifteen minutes, and the results are remarkably satisfactory. The patient is directed to be particularly careful in cleansing the mouth, and is given a solution as follows:

℞ Hydronaphthol .....  
Menthol .....aa gr. xxx  
Oil of Gaultheria .....  
Oil of Cassia .....aa m. iv  
Sp. Vin. Rect .....oz. x  
Tinct. Capsicum .....dr. x  
Aq. dist. ad. q. s. ....oz. xx  
M. Sig. Teaspoonful to half-glass hot water.



## ITEMS OF INTEREST

to be used twice daily, morning and night, and in acute conditions, five times daily, holding the same in the mouth for three minutes. A mouth thus cared for, will show little, if any, inflammation even in the presence of irritation, and the operator may feel that he has done all in his power to protect his patient. Tube No. 6, is a bouillon solution in which is a ligature wire which had been worn in the mouth for one week under this prophylactic treatment. It was gently scraped with a sterile platinum loop by the pathologist, the wire being placed in one bouillon tube and the scrapings in another, and at the end of three days developed a negative result.

I am indebted to the following gentlemen for many of the scientific facts used in the presentation of this subject: Dr. T. H. Dexter, Dr. G. E. Hunt, Dr. T. W. Brophy, Dr. A. W. Harlan.







## **History of the New Jersey State Dental Society.**

By DR. A. IRWIN, Camden, N. J.

*Read before the New Jersey State Dental Society, Asbury Park.*

### **Evolution of a State Dental Organization.**

A history is a record of events in the order which they occurred, with the cause and effects. Dr. J. Hayhurst wrote historical reminiscences covering a period of twenty-one years, and Dr. Chas. A. Meeker drew a brilliant sketch of twenty-five years of official life, but the profession has no history of our Society for the thirty-six years of its existence.

A complete history of the New Jersey State Dental Society would fill several volumes. The problem thus presented is—How to condense volumes into pages?

No one has yet compressed history into five thousand words when fifty thousand words could not do the subject justice. Therefore, I shall not attempt it.

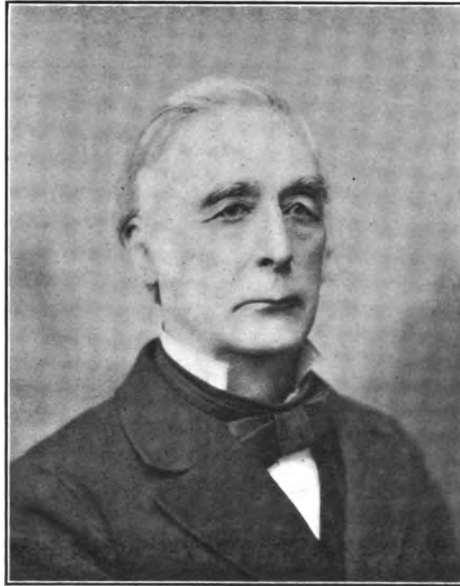
The achievements of the New Jersey State Dental Society are related in narrative form. Those who choose "to read between the lines" will discover the evolution of a great state dental organization. Coincident with this evolution and depending on it will be disclosed a powerful agency in training professional men into scientific experts, who have shaped the destiny of this organization, which in turn has made it possible for them to become famous. Professional men from all parts of the State, experts of national repute and international celebrities have honored the meetings of the New Jersey State Dental Society by their pres-



## ITEMS OF INTEREST

ence and scientific participation, while the Society has conferred an honor upon distinguished dentists by inviting them to participate in our conventions.

One of the many causes which led up to the formation of our State Society is contained in a question addressed to a dental journal in 1869, "Is There a Dental Society in New Jersey?" the answer was—"New Jersey has no Dental Society, we are sorry to say."



DR. J. HAYHURST  
President 1870 to 1871

A pioneer in the formation of our State organization says: "That answer stung me to the quick, and I resolved she would have one. I set to work at once and never rested until it was an accomplished fact. While I received encouragement from many who are now prominent members, I met some who threw cold water on the project and predicted that we would have one meeting, and after that the whole thing would die out, kindly saying: "Young man, you must remember that this is Jersey."

The New Jersey Dental Society was organized October 25, 1870, in the lecture room of the Y. M. C. A., at Trenton, N. J., in response to a "Call" signed by twenty-seven prominent dentists in the State; two of whom, Drs. C. S. Stockton and Edwin Chew, survive at this date. The



"Call" is indicative of ardent hopes, lofty aspirations and a spirit of intelligent activity. It is quoted to remind you of the objects for which our Society was created:

**The Call.** "The entire dental profession of the State of New Jersey are hereby cordially invited to meet in convention, in the City of Trenton, Tuesday and Wednesday, October 25th and 26th, A.D., 1870, for the purpose of forming a State Dental Society, and to devise and adopt such other measures as may be deemed essential to our mutual improvement, and for the elevation of our common profession.

"Let no dentist, who has the good of his profession at heart, stay away. Let us all be there, and by our action in convention show our sister States that New Jersey is in full harmony with them in any movement that will tend to advance the standard of the profession of our choice.

(Signed)

|                                      |                                      |
|--------------------------------------|--------------------------------------|
| Jacob Perkins, Beverly, N. J.        | A. G. P. Colburn, Newark, N. J.      |
| Leo. H. Delange, Bordentown, N. J.   | G. F. J. Colburn, Newark, N. J.      |
| A. W. Kingsley, Elizabeth, N. J.     | A. W. Crane, Newark, N. J.           |
| A. A. Pierce, Elizabeth, N. J.       | J. R. Reid, Newark, N. J.            |
| Clarence E. Tallman, Freehold, N. J. | G. B. Garrison, Newton, N. J.        |
| S. W. Dickerson, Hackettstown, N. J. | J. W. Pool, Newton, N. J.            |
| J. R. Goble, Hoboken, N. J.          | E. F. Hanks, Rahway, N. J.           |
| D. C. McNaughton, Jersey City, N. J. | Chas. Dippolt, Trenton, N. J.        |
| J. Hayhurst, Lambertville, N. J.     | L. E. Reading, Trenton, N. J.        |
| J. S. Simmerman, Millville, N. J.    | Thos. S. Stevens, Trenton, N. J.     |
| C. S. Stockton, Mt. Holly, N. J.     | T. B. Thorne, Trenton, N. J.         |
| J. P. Geran, Mateawan, N. J.         | G. R. Chambers, Vineland, N. J.      |
| J. Naylor Bradfield, Newark, N. J.   | J. L. Trowbridge, Washington, N. J." |
| E. H. Bunting, Newark, N. J.         |                                      |

**Organization Meeting, 1870.** A charter member writes: "We had a splendid meeting, perfected our organization, and the New Jersey State Dental Society became an accomplished fact."

Dr. C. S. Stockton voiced the sentiment of all by saying: "May it continue in existence so long as there are teeth to fill and dentists to fill them."

The first meeting was called to order by Dr. J. Hayhurst. Dr. Fowler of Newark was elected temporary president and Dr. E. F. Hanks, secretary pro tem.



## ITEMS OF INTEREST

A constitution and by-laws were adopted. Officers were elected for the ensuing year.

The opening topic was "The Application of the Rubber Dam." Some of the members doubtless became twisted in the heat of the discussion, as our patients do to-day and called it "Dam(n) Rubber."

Dr. A. W. Kingsley gave a clinic on the same subject. He declared that "if he were compelled to give up all that he had learned about



DR. A. W. KINGSLEY  
President 1871 to 1873

dentistry during the previous ten years, with the privilege of reserving one thing, it would be the rubber dam. This *profane* topic was followed by a debate upon the "Separation of the Teeth," when some even questioned the propriety as well as the manner of the operation.

The subject of "Taking Impressions" was also discussed.

The first annual convention occurred in Newark, July, 1871, Dr. J. Hayhurst presiding. Among the fifteen dentists elected to membership were some who afterward became famous in dental annals and left the stamp of their genius upon the history of our Society, particularly Drs. Chas. A. Meeker, and Geo. C. Brown.

Dr. Straight's Patent Flexible Edge, and Weston's Metal and Cellu-



loid Plates were considered. Drs. Delange and Hanks gave clinics by filling teeth with gold, using the Rubber Dam and Morrison Engine. The members adopted these labor-saving devices with alacrity.

There was projected at this session a series of "offensive and defensive tactics, which published to the world the fact that our Association is a progressive organization and handles the different problems presented in a radical manner. At this meeting Dr. Colburn described "Bacon's Method" of trapping dentists who use vulcanite without a license.

The Executive Committee was authorized to defend the first member of the Society who should be sued under the Cumming's patent.

War was declared upon "Quackery" by the New Jersey State Dental Society—strongly denouncing and protesting against the practice of advertising cheap dentistry, now in vogue by those claiming to be dentists.

Dr. A. W. Kingsley presided at Long Branch,

**Second Annual  
Convention, 1872.**

July 9, 1872.

Dr. F. C. Barlow was elected to membership.

He became one of our most active members, striving earnestly for many years to raise the standard of dental education and filling all the offices efficiently within the gift of the organization.

Clinics were given by Drs. W. H. Dibble and L. W. Reading, illustrating the "Use of Varney's Points, the Steel Mallet and the Morrison Engine." The subjects for discussion were the "Use and Abuse of the Mallet;" "Is it Possible to Bleach a Tooth After Discoloration?" "Oxychloride of Zinc as a Capping for Exposed Nerves and Fillings;" "The Relative Merits of the Various Preparations of Gold;" "The Use of Phosphate of Lime."

Dr. Louis Jack exhibited his "Matrix Method" of filling a tooth.

The thanks of the Society were extended to Drs. S. S. White for his defence of the Gardener suit in the United States Court and the aid of the Society was tendered to him in any future litigation on the Cumming's patent.

**Third Annual  
Convention, 1873.**

President A. W. Kingsley officiated during the session of 1873 at Long Branch. Among those

elected to membership were Drs. Adelberg, A. J. Freeman and E. M. Beasley who have reflected great

credit upon the Society during many years of service, Drs. Adelberg and Beasley each filling the office of President with marked ability.

An Act establishing a Board of Dental Examiners was presented by the Committee on Legislation. The first board consisted of Drs. C. S. Stockton, J. Hayhurst, D. H. Delange, L. E. Reading and D. C. McNaughton.



## ITEMS OF INTEREST

The Society was incorporated July 14, 1873.

The custom of selecting delegates to other societies was instituted, five members being delegated to the American Dental Association, meeting at Put-in-Bay, August 5th, and we made our National "debut."

The subjects considered were "Toothache," "Capping Pulps," and "Treating Diseased Pulps." In the discussion that ensued the remedies suggested as efficacious were nearly as numerous as the members in debate.



DR. G. C. BROWN  
President 1874 to 1875

Dr. S. S. White exhibited his "Electric Automatic Mallet," and Dr. D. L. Jack reviewed the "Rubber Question" under the persecution of Josiah Bacon which incited the following motion: "Resolved that the New Jersey State Dental Society pledges itself to use all honorable means to protect the rights of the profession in the use of rubber and against the 'persecutions' by the so-called proprietor of the patent, under which these persecutions are made."

Dr. Frank Abbott, of New York, gave a clinic with the Automatic Mallet, Dr. Louis Jack with the S. S. White Engine and Electric Mallet; both arousing great interest in their operations.

Governor Joel Parker was introduced and gracefully assumed the role of a "Buzzing Hornet." The genial Governor enjoyed himself im-

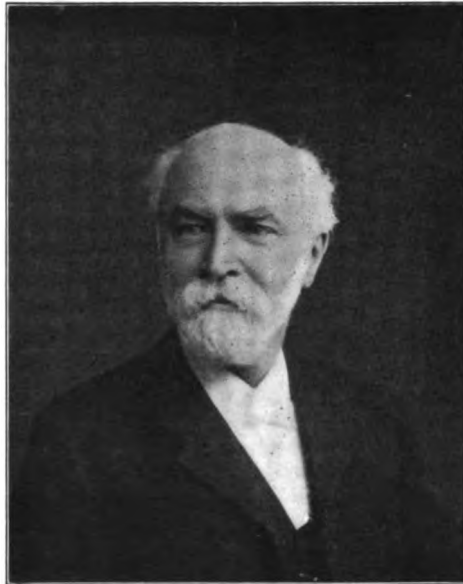


mensely, with the members of the Society, who greatly appreciated the humor and tact of the Chief Executive.

**Fourth Annual  
Convention, 1874.**

The fourth annual meeting was held in the Historical Rooms at Mt. Holly, July 14, 1874, Dr. J. W. Cosad presiding.

Among others proposed for membership was Dr. Thos. B. Welch, who became a president, and was a staunch sup-



DR. C. S. STOCKTON  
President 1875 to 1876

porter of the Society for many years. He left a priceless legacy to the dental profession in the form of a pure life, an unimpeachable dental reputation and an example of incessant activity, which all dentists could emulate with profit.

After the President had read his annual address, Drs. Freeman and Barker of Philadelphia were invited to participate in the discussions. Dr. W. E. Pinkham read a paper on "Alveolar Abscess;" Dr. E. M. Beasley described the "Morrison Engine" and Dr. J. Hayhurst read an essay on "Dental Instruments."

A friendly greeting was wired from the Pennsylvania State Dental Society in session at Wilkesbarre, Pa., and appropriately answered. Thus the outside world recognized a new factor in shaping the destiny of our profession.



## ITEMS OF INTEREST

During this year a "Memorial" page was placed in the minute book for a record of deceased members and the name of Dr. Lyons M. Pearson entered therein.

A member comments thus on the "Pleasant Rooms of the Historical Society." "I think if I live a thousand years, I shall never forget the 'cool' rooms of the Historical Society in Mt. Holly. A red hot bake oven would have been no comparison; but the hospitality of our friends there more than equaled the warmth of the rooms and fully compensated us for baking."

The truth about this Mt. Holly meeting is that "Foxy Grandpa" Stockton represented that the Garden of Eden was originally located in Mt. Holly and its entrancing bowers contained the most beautiful and charming girls in the State. With enticing words of man's wisdom, supplemented by the blandishments of the fair sex, he cunningly inveigled the innocent members of the New Jersey State Dental Society away from its infantile home—Long Branch; but the time had not arrived for this lusty infant to be weaned, for the next year President Geo. C. Brown officiated at the Fifth Annual Convention in Long Branch.

The President's address referred to the value of properly prepared amalgam, skilfully inserted in suitable cavities. The growing popularity of celluloid for dental plates was mentioned, and its use was recommended as a desirable release from the tyranny of the "Obnoxious Rubber Co." The examiners granted four licenses to practice dentistry.

Dr. T. B. Welch read an essay condemning "Haste to Make Money," and lauding perfection of operations rather than speed. Dr. C. S. Stockton discoursed on "Dental Education," calling attention to the extreme haste of the profession in manufacturing dentists out of students. "Haste to get rich is the glory and vice of the American." Dr. Stockton's verdict was: "I know of no better way of promoting dental education in New Jersey than by faithful attendance upon the sessions of our State Society." This assertion is just as true to-day as it was then.

Dr. Chas. A. Meeker urged that the examination of the Board of Censors should be *so thorough* that the "Diploma" of the Society will be an honor to hold although the candidate possesses the degree of D.D.S. also. "We should work for the *elevation, education, and character* of the Society."

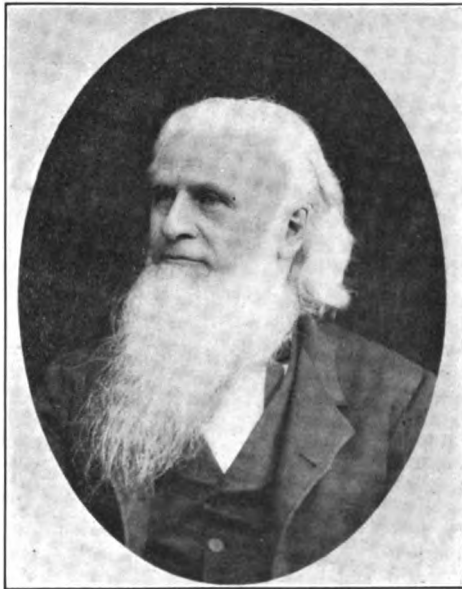
Dr. G. D. Perrine of New York explained "The Use of the Galvano-Cautery Battery." He claimed that it was the "advance" of the age. It



was apparently the forerunner of cataphoresis, both being designed to obtund sensitive dentine by means of electricity.

Dr. J. R. Goble read a paper on the "Cause and Cure of the Absorption of the Alveolar Process" which Drs. Abbott and Kingsley discussed.

Dr. C. S. Stockton, the newly elected president, was authorized to welcome the American Dental Convention which was announced to meet at Long Branch in August.



DR. T. B. WELCH  
President 1876 to 1877

The "Dental Luminary" appeared above the horizon this year in the form of a small pamphlet designed to enlighten the public mind, but after a meteoric career, it disappeared from view.

Dr. Hayhurst addressed the convention upon the subject of the "Best Method of Inserting Artificial Plates."

Dr. E. F. Hanks read an essay on "Amalgam," which was a trenchant vindication of this much abused filling material, and it appeared at a most opportune time.

Dr. L. H. Delange, in a paper entitled: "Rubber versus Celluloid," asserted that the advantages of celluloid over rubber were cleanliness, strength, color, toughness, lightness, adaptation to plain teeth, and com-



## ITEMS OF INTEREST

patability with the mouth. Last but not least, he declared: "We can save our 'Bacon' by using celluloid instead of vulcanite."

A new era dawned upon the New Jersey State  
**Sixth Annual** Dental Society, July 8, 1876, in Congress Hall at  
**Convention, 1876.** Atlantic City with President Stockton in the chair.

This convention was inspired by the presence of some of the most brilliant speakers, profoundest thinkers, and skilful workers in the profession; such as Drs. Wm. H. Atkinson and Elisha Townsend, Dr. Gildea of California, Professors Darby and Barker, Drs. Marshall B. Webb and W. G. A. Bonwill.

President Stockton, in a few appropriate introductory remarks, described the pleasant reception accorded him at the New York Dental Society meeting, and Dr. J. Hayhurst read a paper upon the "History of Dentistry."

Dr. Gildea of California in opening the discussion commended the "research" displayed in the paper and spoke concerning the "early fillings," tin being used first, and the excellent work performed by this material. He asserted that "Nearly all the knowledge of the profession was in the form of *trade secrets* until after the establishment of *dental colleges*."

Dr. W. H. Atkinson estimated the "cost of learning" when he was a student from nothing up to five hundred dollars, the instruction consisting of the manufacture of a few instruments, extracting teeth and clipping off roots for the insertion of pivot teeth. He thought the first systematic education came from the dental colleges. In conclusion he inquired: "Which does the most good, the local societies or the dental colleges?" Where the societies exist, the colleges flourish. He concluded that the societies and colleges were co-workers and indispensable to each other, which sentiment we can heartily endorse.

Dr. Welch explained that in a visit to the Philadelphia colleges, he found the students were listeners, not practical workers. In studying the profession they were advised to graduate from medical colleges.

Dr. Barker said: "The colleges simply represent the profession as it is. There are *too* many dental colleges. There should be but *one*."

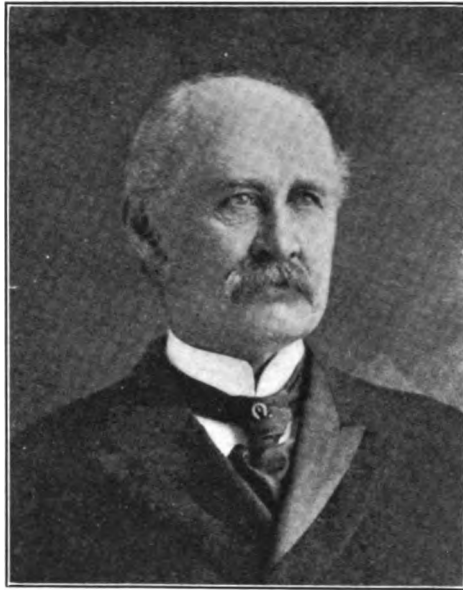
Dr. E. T. Darby spoke of the honest work performed by the professors in the dental colleges. He felt it keenly to hear the colleges disparaged. As a student he learned more in four months in the college than he dreamed of, and was well satisfied with the time spent.

President Stockton thought that the remedy for "poor workmanship" was "more interest in the dental societies." "Bring such men into our State societies and make better men of them," was his advice. And never hath oracle, ancient or modern, uttered wiser words.



After Dr. Reading's paper on "Mechanical Dentistry" was read, Dr. Barker said it was compulsory in his college for students to do mechanical work for half the session. Mechanical dentistry formerly presented all the beauty of *finished jewelry*, but it had taken a backward step. He begged the fraternity not to give up mechanical dentistry.

Dr. Gildea reviewing the past, said he used five franc pieces hammered out on an anvil using models of sheet zinc. In 1846 air-chambers



DR. E. F. HANKS  
President 1877 to 1878

were first used. Later, rubber work appeared, the profession adopting it with hesitation, while the charlatan seized it with alacrity.

Dr. Hayhurst remarked that when he began to practice "thirty years ago" he made all his own tools, his own tooth body, taking the spar from an adjacent field, did his own carving, reduced his metals and did everything from the beginning. All the Mexican and French pieces were then hoarded for dental use. "To-day I can see no such work for beauty of design as there was twenty-five years ago."

Dr. E. F. Hank's paper, "Some Thoughts on Operative Dentistry," was read, and Prof. E. T. Darby declared the vital object of "Operative Dentistry" was "not *how* we filled a tooth, but whether we *saved* it." He exhibited Dr. Bing's method of inserting artificial incisor teeth, also the



## ITEMS OF INTEREST

Bing method of repairing molars by "filling with gutta percha and placing a gold cap on top."

Dr. Marshall B. Webb, referring to failures in filling teeth, thought the galvanic action had a little to do with it, but the failures were due to the want of care upon the part of the operator. "In regard to Dr. Bing's method, he considered *cement-plombe* better than gutta percha for setting gold caps." He liked Dr. Hinchman's method of using porcelain for a cap better than Dr. Bing's plan.

Dr. Barker condemned Dr. Bing's process, because of the liability of secretions getting between the enamel and gold cap.

Dr. W. G. A. Bonwill gave a *sensational* clinic with his electric mallet, filling one cavity with cohesive gold in sixteen, and another in thirty minutes, in the upper central incisors of Dr. Smith.

We were passing through the golden days of youth. When an operator came along who could hammer an eighth of an ounce of gold in a single filling with an electric mallet we thought it was reaching the pinnacle of fame, and as early as 1876 we began to wear our *golden crown* with much pride.

Papers were read by Dr. A. W. Kingsley entitled "The Extraction of the Sixth Year Molar," and by Dr. T. B. Welch on "Dental Therapeutics."

Dr. F. A. Levy was elected to membership. He became a keen and logical debater as well as a faithful officer and guided us wisely through many a stormy session when a safe counsellor was our greatest need.

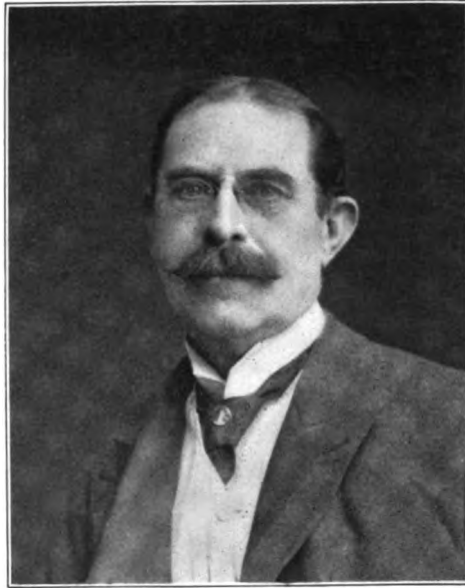
Dr. Chas. A. Meeker read a paper on "Dynamic Force or the Magnetism of the Sexes During the Dental Operations." Drs. Hayhurst and Atkinson expressed themselves as being pleased with the ideas advanced.

Dr. Bonwill, however, differed with the essayist. He considered that the qualities of magnetism had little to do with the fatigue during dental operations. He then introduced the theory of rapid inhalation of air to produce partial anesthesia so that sensitive dentine could be excavated without pain.

Dr. Bonwill was a colossal egotist. He usually began a speech by talking upon the subject under discussion and then digressed in order to ride one of his own hobbies. A favorite method of introducing his address was to deliberately insult his auditors by telling them that they did not know anything about the subject upon which they were talking and then modestly claimed that he, Bonwill, knew it all. But Bonwill was Bonwill, and we all knew his idiocrasy. He was a mechanical genius, such as the dental world has never known before or since his advent and departure from our ranks.



During the year of 1876 the evolution of a state dental organization progressed rapidly. New fields of investigation were cultivated. Trained workers in the dental profession were becoming developed and fitted for state society work. Intellects were undergoing the process of professional evolution whereby they would ultimately become qualified to influence the counsels of the organization and guide it aright through perplexing problems and open up channels of usefulness, hitherto undreamed of. Expansion was the keynote of the Sixth Convention.



DR. CHAS. A. MEEKER  
President 1878 to 1879

The success of this convention was largely due to the untiring energy, indomitable will and sagacious enterprise of President Stockton and Secretary Meeker, who attracted celebrities from far and wide by their united efforts.

**Seventh Annual Convention, 1877.** Dr. T. B. Welch presided July 18, 1877, at Long Branch.

Dr. Welch read his annual address, which was an able thesis, replete with suggestions pertaining to dentistry, the adoption of the latest methods in society work, and ending with sensible advice as to how to increase the prestige of the organization socially, morally, intellectually, and scientifically.



## ITEMS OF INTEREST

Dr. J. Hayhurst presented a paper upon "Dental Colleges," treating the subject in his usual thoughtful and scholarly manner.

Dr. J. Hayhurst was unanimously appointed State Prosecutor.

Dr. W. H. Atkinson delivered a masterly address upon the subject of "Tumors and Abscesses," which many of our members recall with keen relish up to the present time.

Dr. Bonwill described his electric mallet; also his method of pivoting teeth.

Dr. Hubbard read a paper on "Anatomy."

Oscar Peck read a paper on "Oral Anatomy" which was discussed by Dr. W. H. Atkinson.

The eighth annual meeting was called to order by President E. F. Hanks, in the United States Hotel at Long Branch. The minutes of previous years, printed in book form, appeared, and a copy was sent to each member of the Society. The membership numbered sixty-one at this time.

The President's annual address was replete with historical reminiscences concluding with a professional discussion upon the subject of "Devitalized Pulp."

Drs. Bonwill and Carmen gave clinics, and H. S. Smith demonstrated the "Working of Celluloid." Dr. J. Hayhurst read a paper on the "History of Dentistry" which was chiefly devoted to the establishment of dental colleges throughout the United States.

A registration committee of five was appointed to prepare a list of all the dentists entitled to practice in New Jersey under the existing law, together with such lists as they could procure from other States. The Baltimore Dental College proffered a free scholarship to the student whom the New Jersey State Dental Society should recommend. John Coult was designated for this scholarship.

A vote of thanks was tendered to the Maryland Dental College for the offer of a free scholarship.

**Ninth Annual Convention, 1879.** President Meeker called the ninth annual meeting to order at Long Branch.

Dr. G. Carleton Brown was elected to membership. He became an active worker and served with ability in all positions of honor which could be conferred upon him. It is a unique family record for both father and son to become distinguished in Society work.

Dr. C. S. Stockton reported that he had been received cordially by the New York State Dental Society at their annual meeting. The



registration of dentists with their county clerk required by the New York law was explained and Dr. Stockton thought the New Jersey State law should require a similar registration.

A society badge was adopted.

Dr. C. N. Pierce invited the members to attend the meeting of the Pennsylvania Society at the Delaware Water Gap, Pa., July 29, 1879.

The President's address was read. It might be quoted advanta-



DR. FRED. A. LEVY  
President 1879 to 1880

geously now if space permitted. It is a model President's annual address. Read it over before you write your own.

Dr. T. B. Welch read a paper entitled "Little Things," while Dr. Edwin Chew discoursed upon "Vulcanite Vs. Metal Plates for Partial Sets of Teeth" in the most practical manner. The common sense expression of views on platework by Dr. Chew aroused an extended discussion.

Dr. Geo. A. Mills read a paper entitled "Strengthening Weak Teeth by the Use of Heavy Gold and Screws; the Use of Smooth Convex Fillers."

Dr. Mills used No. 120 rolled gold, also No. 60 or No. 40 gold foil in combination with iridio-platinum screws for strengthening frail teeth.



## ITEMS OF INTEREST

A lively debate followed, when some championed and others antagonized the method, according to their personal opinions.

Five dentists were received into membership, including Dr. S. C. G. Watkins, who became one of the most active members of the Society filling the various offices to which he was elected from time to time with marked ability, besides being a prompt and forcible speaker on the topics which came up for discussion.

Dr. J. W. Scarborough read a paper upon the "Use and Abuse of Mercury." This essay is a remarkable arraignment of mercury, systemically administered. It deals with the subject of pyalism, charges that mercury is the chief source of alveolar absorption and loss of teeth, emphasizing the disastrous systemic effects of mercury when administered internally for the diseases which it is supposed to cure.

The debate which followed was keen and displayed marked forensic ability on the part of Drs. Francis, A. W. Kingsley, E. F. Hanks, W. H. Atkinson and others who disputed these conclusions. Dr. Scarborough pluckily defended his paper. The subject was completely ventilated from beginning to end, thus enhancing its value to the student.

Atkinson was an intellectual giant. In the conflict of ideas his delivery in a dental convention reminded you of the roar of a mighty cannon compared to the snap of Gatling guns and the rattle of musketry. Time has cleared away the smoke of battle and taught us that he hit the mark with deadly accuracy. The debate on mercury and pyalism gave him ample opportunity to show his caliber and this debate with Dr. Scarborough's essay are invaluable for reference to the profession.

Dr. F. A. Levy read a paper on "The Elevation of the Dental Profession to its Proper Standing as a Specialty of Medicine," which subject was a challenge to many dentists at this time for a lengthy discussion, as might readily be surmised by those acquainted with the gentleman.

Dr. J. Hayhurst promptly arose and contended that dentistry is not a specialty of medicine, and the debate was fierce between Drs. T. B. Welch, J. A. Osman, J. P. Geran, A. W. Kingsley, E. F. Hanks, C. S. Stockton and F. C. Barlow. It is not recorded which side won in the contest.

Dr. J. P. Geran read a paper on "Dental Education."

Marcus Nason was elected to go to Baltimore Dental College.

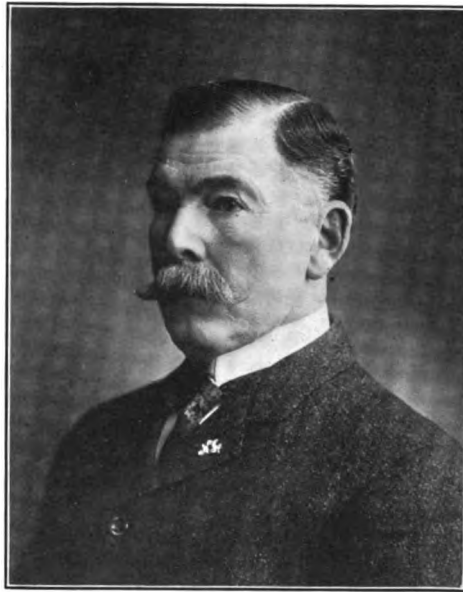
**Tenth Annual  
Convention, 1880.**

The convention was called to order by President Fred A. Levy, and treated to a novel sensation by a fellow member—Dr. J. W. Cosad, who opened it with prayer. Heretofore we were not aware that the Society was developing any one's pious proclivities. Our theological de-



partment had not kept pace with the others; such as the commercial, for instance. It was, therefore, an agreeable surprise to some.

C. A. Timme, W. P. Richards, E. H. Bunting, and Geo. E. Adams were proposed for membership at these sessions and became scientific experts in dental society work. Geo. E. Adams an ex-president, and W. P. Richards, a former vice-president, are enshrined in the hearts and will linger long in the memories of our members for many years of



DR. JAMES C. CLARKE  
President 1880 to 1881

faithful devotion to its interests, while all of this number have rendered valuable service in increasing the usefulness and prestige of the organization.

Eleven applicants passed the Examining Board.

The regular annual "Breeze" threatened to become a hurricane this year when the next place of meeting was discussed, and an attempt was made to anchor in the haven by the sea permanently in one place. Long Branch finally captured the convention and the "Tempest" calmed.

The Committee on Registration presented their first complete report, which was considered separately and adopted. This committee accomplished a great deal of useful work, which was freely criticized; offering a "bone of contention" at many conventions where the combative faculties



## ITEMS OF INTEREST

of noted men were marshalled against each other in the forensic arena.

President Levy's annual address contained three noteworthy announcements. First, the emancipation of the dentists from the thralldom of Josiah Bacon & Co. Second, the death of Dr. S. S. White. Third, the recommendation of the appointment of a Committee on Legislation to secure such a law as would protect the interest of dentists, and compel all dentists in the State to register.

Dr. J. Hayhurst read a paper entitled "Dental Remedies," which did not say anything about the action and uses of medicine; Dr. T. B. Welch read a paper styled "Get to the Front," which was simply an exhortation to excel; J. Allen Osman read a paper on "Mechanical Dentistry, Its Progress and Its Claims," and Dr. C. S. Stockton read a paper on "Dentistry," which for beauty of diction could not have been surpassed by Addison himself. Thereupon, Dr. McNaughton arose and said: "These are very fine essays on morals, and this is a very good prayer meeting, but a very poor dental convention."

Dr. Atkinson took advantage of some allusions in Dr. Stockton's paper to flay the public and professions for the abuse of anesthetics and anesthesia, in his sprightly and pointed manner, finally bringing the discussion down to a professional basis; while Dr. S. C. G. Watkins ably seconded the effort of Dr. Atkinson to keep the scope of discussion within the bounds of mechanical dentistry.

Dr. C. S. W. Baldwin really introduced the subject of dentistry at this convention by reading a paper upon "Dental Hygiene."

Dr. Chas. Pullin read a paper on the subject of "Dental Ethics," and Dr. G. C. Brown an essay upon "Anesthesia."

The tenth annual meeting will go down in history as the Moral Essay Convention. It was also the largest in point of attendance up to this term.

The "Man with the Muck Rake" was busy during the last few years and the cry of "graft" (i. e., commercialism) was raised, therefore, we must conclude that the New Jersey State Dental Society possessed all the elements of an up-to-date organization.

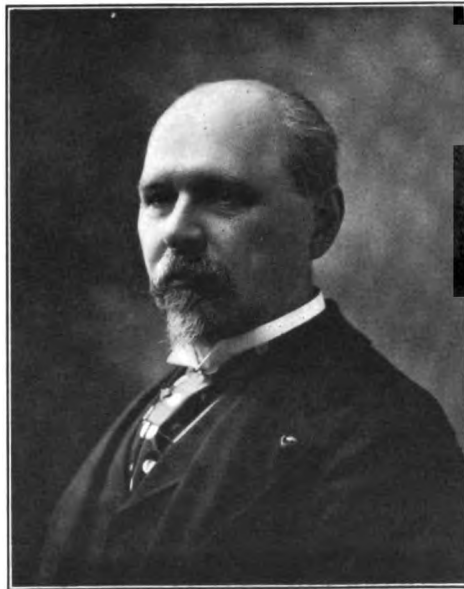
Dr. J. C. Clarke presided at the eleventh annual meeting in Long Branch. Nine dentists were proposed for membership. Among them R. M. Sanger, whose combination of literary talent with mechanical ability is as rare as it is valuable, and has often contributed to the success of our conventions, while the incessant activity, long experience and intense devotion to the welfare of the organization manifested by Harvey Iredell is an inspiration to all dental society workers.

The secretary was authorized to appoint delegates to other dental societies. The President in his annual address exposed some of the

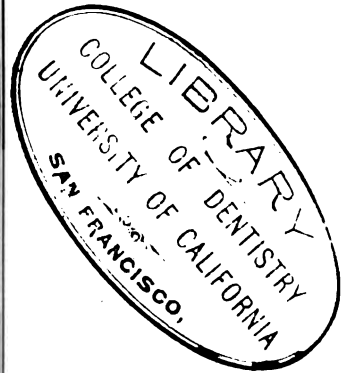


pranks of Cupid, who played havoc with bachelor dentists during the year in the State. He also announced that twenty dentists had signified their intention of taking the dental examination, leaving seven "offenders of the law." He recommended that a quiz box be placed upon the President's table.

The papers read at this convention showed marked improvement. The process of intellectual evolution received a new impetus. Accuracy,



**DR. FRED. C. BARLOW**  
President 1881 to 1882



brevity, and keen observation on technical topics were displayed as a rule in the essays which were presented at the meetings.

A paper entitled "The Truth, the Whole Truth, and Nothing but the Truth, So Far as in Me Lies," was not a legal document by E. F. Hanks, but a frank statement of failures as well as success in operative dentistry, and an arraignment of "Dogmatic," so-called "First Class" dentists who claimed to save all teeth with gold.

Eleven speakers debated this paper, which made a deep impression.

J. Allen Osmun's paper on "Conservative Dentistry" followed.

G. C. Brown instructed us upon the subject of "Pathology," and J. G. Palmer discussed "The Conservative Treatment of the Pulp" with his accustomed acumen, while Dr. S. C. G. Watkins read a timely thesis on "The Care of Children's Teeth."



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There was no lack of speakers upon the subjects of these papers, all of which were admirably written and discussed with enthusiasm, thus presenting a sharp contrast to the annual meeting of the year before in this respect.

Dr. Geo. A. Mills performed an operation for "Necrosis of the Superior Maxilla" caused by a central incisor being accidentally driven into the lower edge of the "Sphenoid Wing of the Maxillary Bone."

A resolution of condolence was adopted and forwarded to the family of President Garfield, who had been assassinated.

Dr. Geo. C. Brown explained the results of his visit to Washington in order to prevent the extension of the Goodyear rubber patent, stating that the New Jersey State Dental Society was the only State Dental Society protesting against the extension of the time for the patent.

The twelfth annual meeting of the society was convened by President F. C. Barlow.

**Twelfth Annual  
Convention, 1882.**

The resolution passed at a previous convention making Long Branch the permanent meeting place of the Society was rescinded.

A report on the "Revision of the Constitution and By-Laws" was adopted after voluminous discussion and some amendments, and five hundred copies were ordered to be printed and distributed.

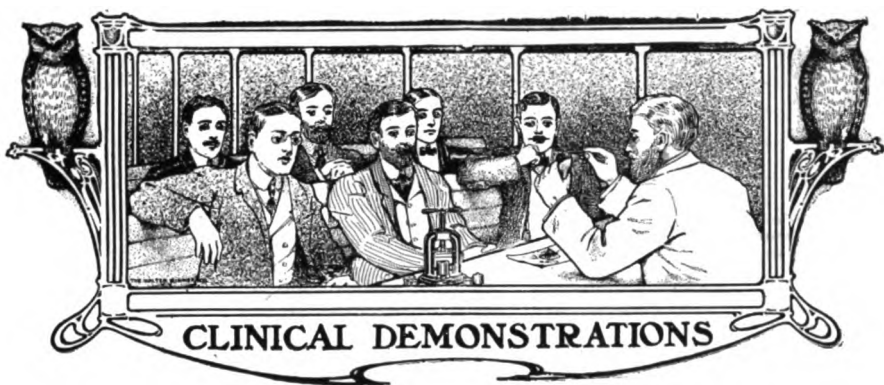
Dr. Barlow recognized "Brevity as the Soul of Wit" in his opening address. He advocated a higher standard of dental examinations and recommended that the State law be amended so as to permit the board to confer the degree of M.D.S. upon any one in continuous practice five years upon "passing a satisfactory examination" before the State Examiners.

Clinics were given on "All Porcelain Tooth Crowns," by W. G. A. Bonwill. "A New Mode Heater for the Construction of Artificial Dentures with Celluloid Base," was exhibited by W. W. Evans. "Heavy Foil Filling with the Electric Magnetic Mallet," was illustrated in a clinic by J. A. Osmun.

Papers were presented entitled "Premature Decay and Loss of Teeth," by S. G. Wallace, "Dentistry Not a Specialty of Medicine," by J. C. Palmer, "Shall Mechanical Dentistry be Separated from Operative?" by E. F. Hanks, "Therapeutics," by L. S. Marsh, all of which were earnestly debated, so that the enterprising dentist could learn and understand the latest and best ideas circulating among scientists.

The twelfth annual meeting was the M.D.S. or Degree Conferring Convention.





## **Report of Clinics Before the New Jersey State Dental Society.**

### **Clinic by Eugene S. Calbot, on the Effects of Excessive Blood Pressure in its Relations to Interstitial Gingivitis.**

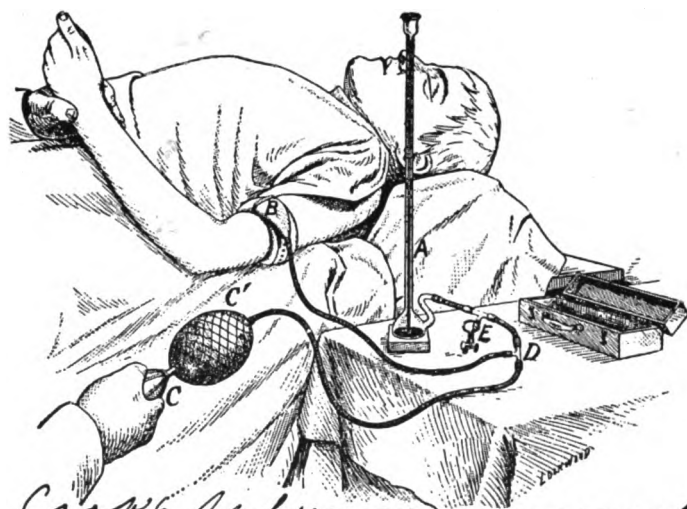
The action of the heart in its relation to disease until within a few years ago, was only demonstrable by the physician's placing the ear over the heart region and by feeling the pulse at the wrist. Both these methods were very inaccurate. The results obtained depended upon the skill, hearing and sense of touch of the physician. Since no two physicians possessed the same skill, sense of hearing, and touch, it stands to reason that an inaccurate diagnosis resulted.

In 1847, Ludwig by his kymographion gave the first accurate knowledge of the circulation. Since his time, many methods and appliances have been made toward this end. Chaveau and Maray, Fick, Hurthle, and others have worked in this field, some using appliances in which air and water were used for the transmitting of vibrations. Later mercurial manometers fitted with valves so as to record only maximum or minimum pressure gave the best insight into the systolic and diastolic fluctuations of blood pressure by which we may make accurate calculations of our clinical approximation. There are a number of mercurial manometers now in use. Some adapted for hospital purposes, others for office use and still others that may be carried by the physician to the bedside. The instrument I have been using for the past few years is called Cook's modification of the Riva Roci Sphygmomanometer (see illustration). This instrument is the most widely used in this country, and has done most to arouse interest in the study of blood pressure. It is simple and easily manipulated. It consists of an



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armlet, a narrow rubber bag, four and one-half by forty cm., covered with canvas and fastened with hooks and eyes S; Richardson's double tube for inflation CC; a glass T canula joining the connecting tubes from manometer; armlet; bulb D; a pinch cock on a small branch tube for the release of pressure E. The glass reservoir is placed in a wooden stand with a scale marked upon the tube A. The reservoir is now partially filled with mercury and the armlet adjusted to the left arm of the patient above the elbow. The arm of the patient must now be placed on a level with the heart, as observed in the illustration.



*Cook's Sphygmomanometer*

The operator with his left fingers upon the pulse of the patient at the wrist forces the mercury with the right hand upon the bulb into the tube. This is continued until the pulse ceases. Note is now made of the height of the column of mercury. Placing the thumb and finger upon the pinch cock, the air is allowed to escape until the pulse returns when note is taken again of the position of the column of mercury. The pinch cock is now opened to allow the air to escape and the column of mercury to return to the reservoir. This experiment is repeated a second time in order to corroborate the first notings.

With this instrument the normal adult female blood pressure is 115 to 125 mm.; normal adult male, 125 to 135 mm. By this instrument, it will be noted that a very accurate knowledge of the blood pressure may be obtained. Indeed, every physician to make a correct diagnosis of his patient must now use one of these instruments.



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We are all familiar with the fact that the heart pumps the blood from the veins into the great arteries, the ventricles first filling, then in a short time discharging their contents with great velocity. The blood moves slower in the capillaries toward the veins than in the arteries. In order that there may be a steady flow of blood through the artery, the coats of the arteries must be elastic to control the flow. In the soft tissues, the expansion of arteries and capillaries takes place. In bone tissue, however, blood vessels are restricted, and therefore when the heart is working harder than normal, the blood vessels become partially non-expansive, irritation is set up in the walls of the vessels due to this pressure and poisonous material circulating in the blood sets up irritation. Inflammation and absorption of bone tissue about the Haversian canals, and the vessels of Von Ebner take place. This inflammation and absorption then, is early manifested in the alveolar process setting up interstitial gingivitis. As one grows older, and especially at the senile period, the eliminating organs do not carry off waste products as readily as formerly. The degree to which these products remain in the system depends upon inheritance and the kind of life that has been led. Inherited taint and excesses tend to weaken the eliminating organs early, hence excessive blood pressure due to the accumulation of poisonous material in the blood may cause interstitial gingivitis and bone absorption earlier than would occur otherwise. (Dr. Talbot here demonstrated the method of the use of the sphygmomanometer.)

### **Difficult Cases in Prosthetic Dentistry**

**Dr. H. Irwin, Camden, N. J.**

This clinic consisted of twelve cases selected from daily office practice, and included among their number two cases of prognathism, or cases in which the lower jaw protruded beyond the upper, and the bite was reversed. The lower teeth protruded over and beyond the upper teeth. The manner of bite was illustrated by the plates which had been constructed and were in daily use in the mouths of patients.

The first case in prognathism was where an upper and lower partial set of teeth were required for a gentleman sixty years old and of sanguine temperament, who was subjected to daily inconvenience and even torture by three of the lower teeth biting into the gum of the upper jaw.

The manner in which the difficulties were overcome in this case, and the man supplied with plates by means of which he could masticate his food thoroughly with comfort, was demonstrated. These plates have been in use several years, and the gentleman voluntarily assured me that he would not do without them for anything; in fact he would not give



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them up long enough to bring the original plates to accompany the models displayed.

The second case in this clinic consisted of an upper and lower jaw in which complete absorption of the alveolar process had taken place and left a flat roof. The place originally occupied by the alveolar process was not only absorbed but concave. A full upper gold plate was constructed, attaching the teeth by means of vulcanite and building out bumpers to supply the place of the lost tissue, and restoring the normal appearance of the face, and has been worn for over seven years with perfect satisfaction.

In the lower jaw a plate was constructed of Weston's metal on account of its weight which was also built up to restore the lost tissue, and this plate has also been worn the same length of time with comfort, being retained in position by the muscles of the mouth and the weight; the most remarkable feature in this case was the length of the teeth required in order to present a natural appearance in the mouth.

Numbers 3, 4, and 5 were cases in which the teeth of the one jaw in mastication came in contact with the gum of the opposite jaw, producing soreness, and from which the patient sought relief. Each one of these three plates was constructed of gold. The third case permitted only cusps to be inserted between the plate and the teeth in the upper jaw. In this way the bite was opened, and the patient was permitted to eat with perfect comfort.

Case No. 5 consisted of a full upper and lower denture constructed of gold with vulcanite attachments.

In this model the lower jaw protruded so far beyond the upper, that it was extremely difficult to construct a practical case in which the suction of the upper plate would not be broken by the extraordinary leverage exerted by the teeth in the lower jaw.

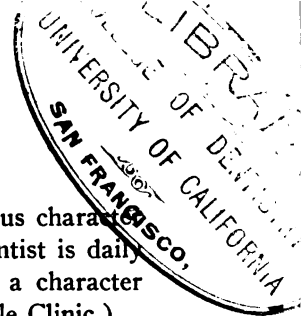
The lower front teeth were the smallest and shortest that could be procured owing to the fact that the patient possessed an extremely short under lip, exposing even the alveolar process of the lower jaw when she opened her mouth wide.

Five of these models were articulated upon the Gritman Anatomical Articulator, and two of them upon the W. W. Crate New Plain Line Articulators.

The interesting feature of this clinic consisted of a number of carved pivot teeth, made to be attached to roots by the old-fashioned hickory wooden pivot. These teeth illustrated the construction of the pivot teeth of seventy-five years ago, and were made by Dr. Edmund Crew of Salem, New Jersey. He is one of the original members of the New Jersey State Dental Society.



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The remaining cases in this clinic were of a miscellaneous character illustrating the various difficult types of mouth which the dentist is daily compelled to provide suitable plates for, and were of such a character as can be only illustrated, and not described by words. (Table Clinic.)

**Dr. L. E. Custer**

**29 North Ludlow St., Dayton, Ohio**

1. Demonstrating an electric oven for the fusing of Jenkins' Porcelain. It has been shown that if the matrix is heated in advance of the porcelain, the porcelain will melt down to the matrix causing the least change of shape of the matrix.

This oven heats the bottom and sides of the matrix just as a flame would do.

2. Demonstrating the use of the Nernst Lamp Glower for the illuminating of the electric oven. This produces a bright light in one part of the oven which casts shadows about the porcelain and which bring out the fusing as clearly as if it were in the open air.

3. An automatic warm air blast in which by the mere act of taking the instrument from its place a blast of air saturated with alcohol is heated to blood temperature at the moment of delivery.

4. An automatic soldering device. A bellows operated by a motor which is inflated at the time of taking the instrument from its place, and which automatically cuts the current off when the instrument is put in its place.

5. Miniature electric oven for the operating table for annealing gold, warming gutta percha dressings and water. (Table Clinic.)

### **A Method of Bridgework**

**Dr. N. Penn Bugbee**

**Springfield, Mass.**

Instead of putting a gold cap on both abutment teeth I put the gold cap on the distal; then on the anterior abutment I put in either a gold or alloy filling, or a gold inlay—and allow a clasp gold wire to rest in a groove in the filling, or the gold inlay, thereby prolonging the life of the tooth by allowing the natural movement of the tooth in occlusion. (Table Clinic.)

### **Anatomical Articulator**

**Dr. C. De Witt Gritman**

**714 Perry Building, Philadelphia, Pa.**

The correct placing of the casts on the articulator is of great importance. If the casts are not placed on the articulator in their anatomically correct relation, then a very important step in the construction of the denture has been omitted.



## ITEMS OF INTEREST

The use of the face bow is to correctly transfer the bite from the patient's mouth to the articulator so that the casts will hold the same position relative to the pivotal points of the articulator that the alveolar border holds to the centers of the temporo-maxillary articulation; then when the articulator is opened it will move on a radius of the same circle that the mandible does.

We aim to imitate the natural teeth in size, shape, shade, arrangement, and their esthetic features. Why not continue to imitate nature by using an articulator that will at least give more than one of the many movements of the mandible?

An articulator that will reproduce a few of the movements of the mandible is of great assistance to those who try to give the patient the greatest of comfort from artificial dentures.

A clear minded thinker has asked, "Would the great Designer of nature have designed an articulation so complicated as the temporo-maxillary articulation is if a plain hinge would have answered as well?"

In the human anatomy, we find only useful movements. After the casts have been correctly placed on the articulator the teeth can be arranged so that when the mandible is moved forward, every tooth will articulate, and when the mandible is moved from side to side there will be at least five points of contact, thus distributing the force of mastication evenly on the surfaces of the curves of occlusion.

The fusing of a full upper and lower denture is a mechanical operation and unless the arrangement of the teeth is based on anatomical as well as mechanical principles the patient will not derive the maximum of comfort from their use. (Table Clinic.)

### **Pyorrhea Treatment**

**Dr. C. M. Carr, Kansas City, Mo.**

I contend that the mechanical principles on which all cleansing instruments have been constructed, has been faulty, and that it is a physical impossibility to accomplish the results we seek with any such as have been offered. I claim a principle of an instrument operated as a plane, using the tooth which is being worked on as a rest, and it is impossible to make the instrument to take hold or work in any other position. Therefore it is an impossibility to leave anything but a smooth surface, with the use of my improved instruments. In contradistinction it is impossible to leave a smooth and polished surface with any instrument constructed on any other plan. Many dentists have at many times gotten the deposit off and got it all off, of many teeth, but in getting the deposit off with instruments made upon faulty mechanical principles they have left a rough and scratched surface which is not only an irritant of itself



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but offers a secure place of lodgment for secondary deposits and within from one to six months' time, as they have always claimed, they had recurrence of pyorrhea, which is exactly what they did have. When a smooth and polished surface is left with no scratches there is no reason why there should be another case of pyorrhea in any less time than it took for the original case, which is from five to twenty years, and the only thing necessary to prevent recurrence of pyorrhea, as I always explain to a patient is, not an ordinary, but a thorough, cleaning once a year.

### **1. A Removable Wire Bridge**

### **2. An Improved Plain Line Articulator**

**Dr. Walter W. Crate, Camden, N. J.**

My clinic of a removable wire bridge consists principally of a sealed tube of twenty-two karat thirty-gauge gold plate, sealed at the end, about one-third of an inch long with a collar to be dropped to a depth and cemented in the devitalized tooth. This will serve to receive a platinized gold wire pin of corresponding length and gauge which is placed as an abutment to one end of a small bridge. The advantage of this system will be more fully appreciated in those cases where teeth have been lost from one side of the mouth, and it is not desired to make a vulcanized plate with a strip running back to the anterior incisor teeth. The abutment at the other end of this removable wire bridge consists of the usual clasp, and the teeth are preferably held to the apparatus by vulcanite although in many cases I have used the gold backing and solder, as in the usual bridge.

My clinic demonstrates this form of bridge replacing two lost centrals in the upper jaw, a slight clasp clamping over the lateral incisors of the upper jaw, and the tubes and wires described passing by the neck of the lateral tube on the palatal side of the bridge to the basilar portion of the cuspid tooth.

I present another model which demonstrates the replacement of two lower left bicuspid teeth, the only teeth lost from that jaw, and shows a clasp surrounding the molar and the new tube and platinized wire inserted therein passing to the lower left cuspid.

Clinic No. 2, on the subject of an improved plain line articulator, shows the usual plain line articulator with a guide ridge and curved connection placed between the two top plates of the articulator, the said plates being held together by a thumbscrew. This articulator was constructed to enable the laboratory man to set up teeth in accordance with Bonwill's compensatory curve. The demonstration consists of a plaster model of a perfect set of upper and lower teeth fastened to the articulator, the



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superior centrals overlapping anterior centrals as in a normal case. By loosening the thumbscrew and running the top forward flap back, which is permitted by reason of the V-shaped guide ridge and curved connection, three points may be made to touch between the upper and lower model; namely the superior centrals strike the anterior centrals below and the upper first molar buccal cusps on each side strike the buccal cusp of the lower second molar. A plate made after this fashion on this articulator can not come down upon the patient biting on the front teeth as the point on either side of the molars strikes simultaneously with the anterior bite. (Table Clinic.)

### **Gold Inlays**

**Dr. Lionel L. Homburger**

**117 West 79th Street, New York City**

I first prepare the cavity in a suitable manner, then I take an impression of the cavity with Prefection modeling composition; then I also take a bite of that side of the mouth, also in modeling composition. Then I dismiss my patient. I prepare my model and articulate it, and I take my impression and set it in Melotte's Moldine and oil the surface of it, and also oil the surface of my metal cup. I put the cup over the impression and I fuse some of the new S. S. White inlay metal. This I pour through the opening in the cup. After it is set I separate and I have my die. On this die I swedge a matrix of twenty-four karat, thirty-six gauge gold. Then I cut a hole in the bottom of the matrix. I remove this matrix and set it in my articulated model and put a piece of soft modeling composition into the matrix and let the plaster teeth bite together. This core I carve up by hand so as to imitate the fissures of the teeth, making an allowance for the gold which I afterward swedge over this. I then set the matrix containing the core into my die, lay a piece of twenty-four karat, thirty-six gauge gold on the same and swedge. I then separate and remove the core and solder the two pieces of gold together with twenty-two karat solder. I then set this inlay into my articulated model and let the teeth come together in order to see if the articulation is correct; if it is not absolutely correct the bite of the plaster teeth together will correct this. I then reverse the inlay and fill in the opening with eighteen karat solder sufficiently to reinforce the biting surface. I then polish the approximal surface and set the inlay into the tooth with cement, and then finish in the mouth. It needs absolutely no grinding for occlusion as the occlusion is perfect.



## ITEMS OF INTEREST

### **Orthodontia—Jackson System**

**Dr. V. H. Jackson**

**240 Lenox Avenue, New York City**

Dr. V. H. Jackson demonstrated his system of correcting irregularities of the teeth. He showed the method of constructing appliances, first describing how to prepare a model. An accurate model is made and the teeth carved slightly at the neck, which causes the appliance, when made, to fit closely, insuring good anchorage.

The appliance consists of partial clasps, spring clasps, base-wire, finger-springs, lugs, etc., assembled on an accurate plaster model on which they are finally soldered. Spring clasp attachments retain the appliance in position by grasping the anchorage teeth. They are made by first arranging partial clasps on the lingual sides of the molars and bicuspid used for anchorage. The partial clasps are made of pieces of 18 karat gold plate, No. 36 Standard wire gauge, contoured to fit the side of the tooth, usually the lingual side. The gold is roughened on the side where the solder is to be applied.

The spring clasps are of No. 21 or 20 wire, either of gold, silver-nickel, platinum, or German silver. They are shaped to fit the opposite side of the tooth from the partial-clasps near the gum, with the ends passing over the arch, following closely at the junction of the teeth and resting on the partial-clasps to which they are finally soldered. A large wire known as the base-wire or body of the appliance is shaped to cross the arch following the palatine curve with the ends bent at nearly a right angle forming arms. These arms rest on the partial clasps to which they are soldered with the spring-clasps. To this anchorage portion of the appliance, springs of any form are united with solder. They are shaped to extend like gingers for moving any of the teeth in the arch as desired.

The base-wire crossing the palatine arch is termed a palatine base-wire; when it follows the lingual curve of the teeth a lingual base-wire, and a labio-buccal base-wire when it is arranged to pass on the labial and buccal sides of the teeth in the arch.

The method of soldering with chemically pure tin, using the soldering iron, was described.

Models and apparatus were presented showing the ease with which the arches of the jaws and teeth are equalized with the Jackson appliances and rubber elastics. Models and appliances of numerous cases were presented, showing the conditions before and after regulating, and the extensive movement accomplished in from two to eight visits. (Table Clinic.)



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### **Carving Entire Crown of Porcelain Body**

**Dr. H. E. Kelsey**

**Commonwealth Bank Building, Baltimore, Md.**

The object of this clinic is not so much to demonstrate any special form of crown as to illustrate how easily porcelain body as it is prepared to-day may be carved into any desired form.

It is as simple to shape up a crown with good occlusion for an irregular case with abnormal bite as it is for a normal one, and it is in such cases that this method is especially valuable, though even in the simple cases it is often quicker than any other method.

The blending of the shades is managed much as it is in porcelain inlays, and the general shade of a carved crown should not give much trouble to any one who makes inlays as they require far greater accuracy of color.

My procedure is to burnish platinum cap thirty-six to forty gauge to end of root, soldering the post in with platinum solder or pure gold, allowing the end to project above the cap one-sixteenth to one-eighth of an inch according to the bite. When post and cap are properly fitted, place the post in a pin-vice for convenience in handling and put a layer of foundation body over top of cap and around post allowing it to extend well out over the edges of cap to compensate for the shrinkage. This foundation body should be the shade desired for the cervical portion of the crown. Upon this base build the regular body to approximate the desired contour and occlusion and finish by carving with suitable grooves. More body may be added if desirable by slightly moistening the mass. Rapid heating must be avoided in the baking of the crown until the moisture is thoroughly dried out of the body. The crown may be ground away or added to and rebaked if the fit is not good after trying in. A more accurate way and one I more often employ is to work from casts. With the cap and post in position take an impression and bite and before pouring cover the post with wax so it may be withdrawn after the plaster has set.

From the approximal surfaces of the teeth on either side of the root to be crowned trim away sufficiently to allow the porcelain to be built out about one-third larger than the crown will be when baked, as the average porcelain shrinks about one-third of its diameter in masses the size of a tooth. Of course the same allowance must be made in the length of the crown; therefore the bite should be opened correspondingly.

By making two sets of models and leaving one untrimmed the crown can be tested for size and occlusion before the patient is seen. (Table Clinic.)





#### **A Method for Repairing Broken Facings**

**Dr. P. B. McCullough**

**2211 Spruce Street, Philadelphia, Pa.**

Cut pins off, flush with back of facing selected to be used. With a drill smaller than the diameter of the pins cut the latter out, then enlarge the holes to admit the heads of the pins on the backing in the mouth, using a bur with temper drawn with carborundrum in glycerine as the abrasive. After the facing has been ground as may be required to fit the space and backing, it is set with cement. Speed is gained by using a small diamond drill to enlarge the pin holes in the porcelain after the platinum has been cut out. For those who may be successful in dissolving the pins in nitro-hydrochloric acid, the danger of splitting the facing with the drill is avoided.

#### **The Optimum Method of Investing for Making Vulcanite Plate**

**Dr. F. S. Miller, Rochester, N. Y.**

"The Optimum method of investing, for making a vulcanite plate," consists in reversing the order usually employed by dentists, and leaving the cast of mouth and teeth in the lower part of flask, instead of having them draw with the upper part of flask. This method insures a positive articulation, when plate is completed, and obviates the necessity of grinding to restore articulation, owing to the fact of the flask not having been closed exactly as it was when filled with plaster. This method requires a larger flask than those usually employed, and to meet this I have made brass flasks, sufficiently large to flask the largest case that may present. With this method it is immaterial (so far as relative position of the teeth to the cast is concerned), whether the flask is properly closed or not, as the teeth are firmly imbedded in their proper relative position. Furthermore in the use of pink rubber in connection with black or other rubber, the pink remains exactly where placed, and the black can not penetrate it, as it often does in the old method. (Table Clinic.)

#### **Contour Gold Fillings Which Preserve the Interdental Space Without Exaggerating It**

**Dr. L. H. O'Brien**

**542 Fifth Avenue, New York City**

In our struggle to attain in our dental operations the highest ideals we can easily overdo the matter and produce results which in time prove to be detrimental.



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This is particularly true when after extensive wedging or separating a number of contour fillings exaggerating the normal size of the filled teeth are inserted.

Many of us have seen mouths where extensive operations have been made with an eye to extension for prevention and found that each tooth was apparently elongated, an effect produced by the partial receding of the gums and straightening or stretching of the gum line.

These patients in many instances have suffered from acute sensitive-ness of the necks of the teeth and the whole mouth has been put in a state of strain so that the normal articulation produces movements and gradual loosening of the teeth.

Different operators attain ideal contours in different ways. One operator whom I had the pleasure of watching filled out the whole interdental space with gold and then sawed out a wedge-shaped piece leaving the lower portion intact. This man produced the ideal contour but in my estimation did it at great nerve cost to both himself and his patient.

An easier method, for which I claim no originality, enables one to attain the exact contour with the least expenditure of energy.

The cavity being prepared and the rubber dam adjusted, a matrix of such width and shape as one may need is cut from a sheet of thin steel.

Two orange wood sticks triangular in shape are sharpened to points and inserted back of the steel matrix, one being inserted from the palatal and one from the buccal side.

These two sticks pass each other and only sufficient force should be used in meeting them to press the matrix against the cervical margin and hold it there.

Great care must be exercised from beginning to end to thoroughly condense the gold, and when this filling is completed it needs no approximal disking by which many a good contour has been ruined.

The cervical edge can be trimmed with a sharp lance preferably and polished with strips, and the contour is as nature intended it. (Chair Clinic.)

### **Gilmer's Method of Creating Fracture of the Mandible**

**Dr. Alice M. Steeves**

**229 Berkeley Street, Boston, Mass.**

Frederick G——— was admitted to the hospital March 16th. On examination some crepitus was found and a fracture at the body of the jaw on the left side between the lateral and cuspid teeth; owing



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to the rotation of the fragments, found a fracture also at the ramus. Owing to condition of swelling it was impossible to diagnose the fracture at the ramus from crepitus, but the rotation proved that there was a detachment, else it would not have rotated. The patient's teeth were perfect and the molars were very close against the angle of the ramus, therefore the question of food had to be considered. Gas was administered and the superior right third molar extracted in order that the patient might take food. The bicuspid and first molar teeth on either side were securely wired together thus securing normal occlusion and using the superior maxilla as a splint for the inferior. Owing to the severity of the trauma the inflammation was six days in subsiding. During that time ice bags to relieve the inflammation were applied, and the patient was fed with appropriate diet. The wires were tightened eight days after the operation and also two weeks later; that was all the change that was made in the dressing or wiring for six weeks, when the wires were removed. As the fracture was through the socket of the cuspid tooth, that naturally being the longest socket in the lower jaw, the cuspid tooth was loose for some time afterward; this was retained in place by a silk ligature, changed at intervals. (Table Clinic.)

### **Combination Metal and Cement Fillings**

**Dr. Levi C. Taylor**

**68 Pratt Street, Hartford, Conn.**

We find gold and amalgam are not as good preservers of teeth as desirable. The question has long been before the public how we can best preserve teeth.

During the last ten years we have been experimenting with the combination of metals and cements, until it seems to be proven beyond question that the combinations when properly made make a much better preserver of the tooth than it is possible to obtain with metals alone.

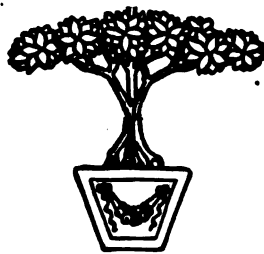
As our clinic shows, heat has much to do with making a hygienic filling. First place a thin cement all over the cavity with the point of a probe—then take some porous gold "Watts Crystal," "Moss Fiber," or "De Trays," and anneal by heating to red heat not less than ten times, and more is better. Place the gold, when hot, upon the cement. Heat your burnishers—two of them—to blueing point, and with one in each hand place them upon the gold, press slowly with both hands, when the heat will suck the cement into the little interstices in the gold, making many little retainers for the filling. Heat more gold and burnish on to this piece until filling is three-fourths made; take paring chisel and trim



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enamel edge, then place next piece of (well annealed) gold foil on center of filling and burnish from center on to the enamel until the filling is ready to finish in ordinary style.

For children—ten years—remove decay only (in front teeth), place a little cement and use one or two pieces of "Watts Crystal" gold, pressing into cement with hot flat burnisher and holding for one or two minutes—wait ten minutes and finish with carborundum strips. Many of these little fillings have been in four or five years with no signs of decay or dislodgment. (Chair Clinic.)







## **New Jersey State Dental Society.**

### **Discussion of Dr. Irwin's Paper.**

**Dr. G. S. Stockton.** It is as creditable to write history as to make it. and I think the paper an extremely good one. There is one point that I would like to add.

Previous to the organization of this society thirty-six years ago, I wrote letters to a dozen or more gentlemen throughout the State asking them to meet in Newark; I am very sorry that I can not give you the exact date. That meeting was one of consultation to consider the advisability of forming a society, and out of that meeting held at No. 9 Bank Street, Newark, in the Academy of Music as it was called, grew the New Jersey State Dental Society. Of the twenty-seven men who signed the call for that meeting a number were present at the meeting and authorized the gathering at Trenton, where the organization took place. So, if there is any credit due for it, I am entitled to the credit of suggesting, at all events, the New Jersey State Dental Society.

There is another bit of history that should appear in this paper of Dr. Irwin. At the session of this Society held in 1882, a committee was appointed to go to the legislature and procure a law giving authority to the Examining Board to confer the degree of M.D.S. Believing this proposed law to be a very detrimental one to the best interests of dentistry in our State, I opposed it. And alone, against the almost solid combination of the society membership, I defeated the measure. This is the best thing I ever did for this society. The details of the fight and victory are not now necessary to be given.

The name of William H. Atkinson is known to a great many of you. His personality was such that any one reading his works to-day can



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form but little idea of it. He was a man standing about five feet eight high, and weighing about a hundred and ninety-five, long hair and beard; keen eye, strong physique, a strong man in every respect. No man had ever lived who had the command of language that William H. Atkinson had. He was an enthusiast in medicine and dentistry, and he had a way sometimes of really blackguarding dentists for their ignorance so that they became ashamed of themselves. Atkinson did more to make dentists ashamed of their ignorance than any man who has ever lived. He came here to New Jersey, to this society; he was a personal friend of mine as of others, and he never missed a meeting, because he liked us Jersey men, and sometimes he would soar off so high with such a command of language that you could hardly realize it was an ordinary human being who was talking, and sometimes he said that the angels inspired him.

There were two other men both born in 1844, a fortunate year, whom we had with us; one was Marshall Webb, and the other G. Parmly Brown. Webb, with his enthusiasm for better work killed himself. Brown had more sense and lives to-day to tell the story. There are many other men I might mention; Hayhurst I might mention as man of good theories, he was our second President; Dr. Kingsley, President twice. So I might go on with this list if it were not getting so late, and tell you the characteristics of many of these gentlemen who helped to make this society.

I have only one word to say in closing—you want to be enthusiastic to be the best dentist there is, not to be as good as somebody else, as good as Brown or Webb or Atkinson or Luckey or anybody else, but to be better than they were, and then you want to be enthusiastic that this society shall be the best there is in the whole United States, and then you want to *work* to bring it about. The hairs of some of us are getting gray and we will soon drop out and who will take our place? Some of you young men whose hair is not gray yet are the men we look to to take our places, but you are not going to do it unless you qualify yourself for it, and you must work in order to follow those who have given the best of their lives for this society.

I do not know how we can adequately thank **Dr. Chas. H. Mecker.** Dr. Irwin for his work in writing the history of our society. Fortunately I was able to preserve the minutes from the beginning, and when the subject of writing the history of the society was broached to Dr. Irwin he readily fell in with the idea, and I sent him all the data in my possession from the organization of the society to the present day.

Regarding the piece of history that Dr. Stockton referred to, I was among the number that thought the proposed bill a good one. At that



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time New York conferred the degree of M.D.S. through its Board of Examiners, and I thought it would be a good thing for us to do so also. I now know that was a mistake, and I am glad the bill did not pass, because, for one thing, it caused me and many others to go to college and get a diploma.

Dr. Byron L. Rhome then read the report of the Committee on Dental Literature, which was received as read.

### Report of Committee on Dental Literature.

Before entering into the substance of this report the committee would like to state that their time has been fully occupied in reviewing current dental literature and we certainly feel it complimentary to the profession that we have so many men within our circle whose ability, as writers, is proven by the articles appearing in these various books, but in justice to ourselves and in the interest of truth it must be stated that articles after articles and essays upon essays, on analysis are found to contain matter new in some details and technique, but in substance the same as of old, and while undoubtedly the slight variations in the presentation of a subject may prove in the future of benefit to our profession, it is to be deplored that the deviation is not more marked.

#### Electrical Destruction of Fillings.

In an article by Dr. C. P. Davis we have a paper containing or setting up the theory that many of the failures in the fillings of the day owing to a continuation of the ravages of decay is not due to the inefficiency of the operator, lack of technique, or the qualities of the material used for filling purposes, so much as to the presence of electrical currents in the mouth, generated by metals of varying oxidizing qualities and an acid fluid, which act upon the various fillings and rob them of their constituent parts, depositing same on adjoining fillings causing the discoloration of the gold fillings and a depletion of the silver in the silver fillings.

#### Nitrate of Silver a Preventive of Caries.

We are indebted to Dr. W. D. Miller of Berlin, Germany, for experiments involving the use of silver nitrate as a preventive of further progress in caries. It might be said that we are this time dealing with a problem solved, or partly solved, years ago, which is true, but in this experiment the use of nitrate of silver as a preventive has been so well confirmed and substantiated that to many of us it will be a source of gratification. Pieces of ivory were treated with a concentrated aqueous solution of silver nitrate which was allowed to act from a few minutes to twenty-four hours; the pieces were then suspended in



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fermented solution of peptone-sugar-bouillon, or sugar and saliva. After varying periods of time ranging from two to eight days they were taken out and sections were made passing through the point where the nitrate had been applied, and upon microscopic examination a marked protective action on the part of the nitrate was observed.

Human teeth were also treated in a similar manner, the result being recorded as much the same, although not always so pronounced. As a rule the protection offered by the nitrate was more evident when the surface of the dentin had been slightly decalcified. In explanation Dr. Miller contends that it seems to appear that the precipitate of metallic silver in the superficial layers of dentin forms a barrier more or less impermeable to acid.

### **Mortality Due to Dentition.**

With your indulgence the committee would also like the privilege of quoting to you a few passages, dates, and figures in an article on dentition by Louis Ottofy, D.D.S., Manila, P. I., showing terrific mortality: May to October, 1904, inclusive, deaths of Filipinos before completing one month of age—647. The approximate number of deaths during the second and third month probably not due to dental causes, 302. Other causes, 959. Four to twelve months of age due to convulsions, associated with pathological dentition, 1,342. Total number of deaths, 3,250. Excess of births over deaths, 608. Total number of births reported, 3,858.

Dr. Ottofy claims that vaccination increases the suffering incidental to dentition, and Dr. Burchard claims that syphilis and struma accelerate the eruption of the teeth. Dr. Ottofy also claims that the disturbances of dentition, often unrecognized on account of the absence of local symptoms, may be one reason for so large a mortality.

The committee gives you this data with the hope that it may act in a small way as a stimulus to some of our active men in this broad field where the general practitioner and members of our profession are at such variance, and it certainly is to be hoped that there may be at a day nearby such a uniformity of belief and action that the lives of many of these little ones may be spared.

### **Use of the Blue Light.**

An article entitled "The use of the blue light in the reduction of swelling and the alleviation of pain," by Dr. J. C. Watkins, Winston, Salem, North Carolina, may be of interest to you.

The contrivance is a simple 16-candle power blue electric light globe arranged in a funnel shaped tin shield which, at its mouth, is about four inches in diameter; this is extended about four inches and has at its end a round blue glass and convex lens. The round blue glass is used to



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disseminate the blue rays so that the patient may not know the simplicity of the apparatus, and I attribute no especial virtue to the lens. Dr. Watkins claims that in cases of acute abscess, impacted third molars and their associated lesions he has used this blue light with great effect, relieving the pain and causing the disappearance of the inflammatory condition usually attending this form of disease.

**Tonsils.** Dr. N. H. Dawbarn, M.D., in an article entitled "Tonsils True and False," has given us the following facts; many of the children suffering from this pathological condition have very high arches. The bad results following pharyngeal lymphoids or lymphoid growths are four: The high narrow arch of the palate, inefficient development of the upper jaw, the dentition imperfect in quality, or irregular in order, and the tendency to decay, especially of those teeth nearest such growth.

**Degeneracy and Caries.** Dr. Eugene S. Talbot, Chicago, Ill., in his paper "Developmental Pathology, Decay," comes to this conclusion. Few dentists have had proper analytic training. A broader education is necessary to practice stomatology successfully in the future.

Pathology of the head, face, jaws, and teeth must be studied along broader lines. In the evolution of man the face, jaws, and teeth are sacrificed for the benefit of the brain; degeneracy or suppressive evolution, as Thompson calls it, is a part of developmental pathology which exerts beneficial or malign influence according as it attacks a lower structure for the benefit of the higher, or sacrifices the higher to the lower. It may sacrifice brain potentialities to the jaws and jowl as in the ape, or vice versa, as in higher man. The teeth decay more rapidly in pregnancy and constitutional diseases, especially in those cases where the nervous system is involved. The teeth of primitive races decay, but the starting point is always where the enamel is defective. Decay of the teeth is commoner in arrested jaws than in those that are well developed. Decay is commoner in the upper jaw than in the lower jaw, and tooth degeneration under the law of economy of growth whereby a structure is lost for the benefit of the organism as a whole is the greatest determining cause of tooth decay. Without it, lactic acid ferment would rarely act, if at all. Lactic acid ferment is an existing cause of tooth decay in man's evolution.

Rise in evolution means increased control by the central nervous system of local nerves, whether of growth, sensation, or motion, so that explosive performances do not occur as in lower types. Disuse by the local nerves of function results in lessened nutrition. The jaws and teeth being variable structures are most affected by control of local trophic



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sensory or motor nerves since it is unstable, variable structures in which explosive excess is most apt to occur.

### **Moss Fiber Gold.**

Dr. W. F. Johnson of Bangor, Maine, claims that gold moss fiber may be prepared by annealing to a cherry red, then plunging quickly into absolute alcohol after which it is dropped in pure water. He says that gold prepared in this manner can be utilized in filling cavities below the gingival line, and as I understand the article perfect cohesion can be had and a good filling may be so placed even though immersed in liquid.

### **New Books.**

In the last year we have had comparatively few books written; among the most important, the "American Text Book of Operative Dentistry" may be placed. This book is edited by Edw. C. Kirk, D.D.S., Sc.D., professor of clinical dentistry, University of Pennsylvania. The third edition revised and enlarged, illustrated with 875 engravings, Philadelphia and New York, Lee Bros., 1905. Also a text book on "Physiology, Normal and Pathological," for students and practitioners of medicine, by Winfield S. Hall, Ph.D., Leipsic, professor of physiology, Northwestern Medical School, Chicago, Ill., etc. Second edition revised and enlarged with 340 engravings and three colored plates, Philadelphia and New York, Lee Bros. Co.

In the last few days I received by mail a small book entitled "The Teeth and Their Care," by Thaddeus P. Hyatt, D.D.S., Brooklyn, N. Y., King Press.

For some time past the chairman of the committee has felt that a small book explaining the relation of teeth to health and their association with the various diseases, written in a plain and readable fashion, would be a book which many of us would be very happy indeed in recommending to our patients, for nothing to-day is so necessary as the education of the public in general in recognizing the necessity of having their teeth thoroughly taken care of from time to time, and this small book seemingly covers the field beautifully, and we would strongly advise placing many of these books in the hands of the public, feeling sure that there would be mutual benefit received therefrom, all of which is respectfully submitted.

BYRON L. RHOME, *Chairman.*



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Friday, July 20, 1906.

President Duffield called the meeting to order.

There being a quorum present the calling of the roll on motion was dispensed with.

The committee on materia medica presented the following report which was on motion accepted.

### Report of Committee on Materia Medica.

The Materia Medica Committee of the New Jersey State Dental Society would submit for your consideration the following report on the new medicaments coming under our observation during the past year. As cleanliness is next to godliness we would first mention medicated soap.

**Esterine Dermatic Soap.** A medicated product containing 2 1-2 per cent. of antiseptic medication, making, in connection with its antiseptic qualities, a very pleasant and agreeable toilet article.

**Eignol Soap.** An antiseptic medicinal soap, efficacious in cleansing the teeth, also useful in all forms of rough, scaly, or chapped hands.

**Celloidin.** Is acid-free and dissolves in alcohol or ether (it is readily soluble in equal parts of both) to a clear, transparent collodion without any sediment. It is non-explosive and the following formula makes an excellent covering for the hands as a substitute for rubber gloves. Celloidin 1 oz., alcohol (96 per cent.) 5 ozs., ether 5 ozs., castor oil (to render the film elastic and flexible) 1-4 to 1-2 oz.

**Pebeco.** An aromatic chlorate of potash tooth paste, consisting of precipitated chalk, florentine orris root, glycerine, essential oils and 50 per cent. of chlorate of potash. It exerts a tonic influence on the gum tissue by exciting circulation and thus inducing better nutrition. Being a neutral salt it does not attack the dental substance. In the concentrated form in which potash is present in pebeco it either destroys the bacteria of the mouth directly or immediately arrests or retards their growth. It is particularly efficacious in cases of tender, softened, or bleeding gums, and in mercurial stomatitis and is an efficient prophylactic.

**Orocid.** A mild and agreeable antiseptic mouth wash, containing: menthol, thymol, eucalyptol, formaldehyde, soda bicarbonate, oil of wintergreen, oil of peppermint, and magnesia carbonate.



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**Eythol.**

An antiseptic and germicide, containing: thymol, eucalyptol and gaultheria together with borates. It is a refreshing and pungent wash for the oral cavity.

**Euzone.**

An alkaline, antiphlogistic, antiseptic, and germicidal liquid of a pale orange color, containing: lignol, eucalyptol, thymol, menthol, glycerine, soda bicarbonate, soda benzoate, oil wintergreen, and oil peppermint, making an antiseptic mouth wash also useful after extraction of teeth.

**Arnicine.**

An alkaline mild astringent, non-toxic, non-irritant, antiseptic, and germicidal fluid containing the essential antiseptic constituents of menthol, thymol, eucalyptol combined with sodiums bicarbonate, calclate and borate, acetanilid, borax, glycerine, arnica, camphor, oil wintergreen, and alcohol; used as a throat, mouth, and nasal douche.

Is composed of: Cow's milk 50 per cent., malted **Wampole's Milk Food.** barley 25 per cent., whole wheat flour 10 per cent., inner cortex of wheat 5 per cent., lecithin 1 per cent. This food dissolved in water furnishes a concentrated liquid nourishment that contains all elements, fats, proteids, carbohydrates and salts needed to nourish the human body, containing in addition to licithin an abundance of phosphatic salts essential to bone and tooth formation. It is rich also in phosphates derived from whole wheat grain, a property which makes it a superior food for babies cutting teeth and for infants whose bones and nerve tissues are rapidly developing.

**Argyrol**  
(Silver Uthetin).

Is produced from a proteid derived from wheat which is combined with silver. It occurs in dark brown flocculent crystals, which contain 30 per cent. of silver. It is freely soluble in water in all proportions, forming stable solutions. It does not coagulate albumen nor precipitate chlorides, therefore it is non-escharotic. It is useful in pyorrhea aveolaris, aveolar abscess, periostitis of alveolar border, osteomyelitis, stomatitis, and in the antrum of Highmore.

**Caprennalin.**

The active principle of the suprarenal capsule is a powerful hemostatic, vaso-motor stimulant and an aid in an emergency. The lessening of pain through the action of caprennalin is doubtless caused by its modifying the sensibility of the terminations of the peripheral nerves to impressions exciting pain. In this respect it resembles cocaine, and the two together form an excellent combination. Caprennalin not only contributes to the analgesic effects of cocaine, but by contracting the capillaries and retarding the absorption of cocaine into the general circulation, materially prolongs its action. These combined effects are very useful in local operations.



The effect of caprennaline lasts approximately for a quarter of an hour and the blanching of the mucous membrane is achieved in from ten to sixty seconds. Further control over the blood supply of membranes may be obtained by frequent instillations. Caprennaline is a valuable adjunct to such drugs as pilocarpine, eserine, atropine, eucaïne, acetanilid, etc.

**Glykaolin.** Has been designed, as the name indicates, for the purpose of utilizing in convenient form valuable therapeutic properties of its constituents. It is a compound of aluminum silicate, salol and glycerine. Oxidation or the decomposition of glykaolin into irritating products is a chemical impossibility. The therapeutic properties may be considered under three heads: When aluminum silicate is brought into contact with serous, purulent and sanguineous deposits, the result of inflammatory processes, absorption begins at once, leaving the affected part free for the operation of the resolvent hygroscopic, emollient, and antiseptic properties of glycerine and the alterative, prophylactic, antiseptic and anodyne properties of the salol. It will be found of inestimable value in the treatment of open wounds and ulcers, and relief is quickly noted in deeper seated affections, such as periostitis and synovitis and those minor annoying troubles such as burns, sunburn, bites, or stings of insects, with which we so often come in contact. Glykaolin can be removed from the most tender tissue by the application of water.

**Pyrenol.** Occurs as a white, crystalline, slightly hygroscopic powder of aromatic odor; has a sweetish and somewhat prickling taste; is soluble in five parts of water and ten of alcohol; and is a combination of salicylic acid, benzoic acid, and thymol with a sodium salt. From a report of Dr. Fritz Loeb of Berlin, it is claimed to be free from the toxicity of acetanilid mixtures so commonly employed. After many experiments no pathological change that could by any possibility be due to the drug was found, from 1 to 5 grams (15 to 75 grains) daily were administered to three healthy men for several successive days, 15 grams (1-2 oz.) within three days being the maximum. Their general condition, pulse respiration, and gastro-intestinal functions were in no way influenced, save for a moderate and transitory diaphoresis at times. Blood pressure and pulse quality showed little change and especially was never dirotic. It is therefore claimed that pyrenol has absolutely no bad effect on the heart. In tests of absorption of the medication the urine was examined every ten minutes during the first half hour, then half hourly to the sixth hour, and every two hours thereafter. Twenty minutes after ingestion there was salicylic acid in the urine. The reaction increased during the first three-quarters of an hour, remained stationary for six hours, then gradually diminished



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and in ten hours was gone. The antipyretic action was investigated with patients in hospitals and private practice, which showed that the antipyresis was mild, not accompanied by much sweating and without any unpleasant by or after effects. The tests proved it to be a valued preparation as an analgesic. When violent neuralgias cease half an hour after taking a remedy it is without question of value. Relief is also obtained in alveolar abscesses. The dosage is from 15 to 30 grains once or twice daily.

### **Solidified Formaldehyde.**

While not a new medicament within the past year, has not to our knowledge been reported. This is produced by heating the aqueous solution in a sandbath with sufficient heat to form a gas, which instead of evaporating, becomes polymerized as soon as the concentration exceeds 40 per cent., increasing in density until solid, which when placed in the pulp chamber coming in contact with the heat and moisture of the tooth liberates formaldehyde gas which has almost entirely lost its caustic properties. Having been sealed in the cavity it finds its way to all portions of the root canal producing thorough sterilization.

### **Sulpho-Lythin.**

The sulpho-phosphite of sodium and lithium is a granular non-effervescent salt, a new chemical product which is a true hepatic stimulant and intestinal antizymotic and toxine eliminant. It counteracts acid conditions by removing the cause which is an acetous fermentation in the intestines. It also acts moderately on the kidneys and the skin. Its action upon the liver is through the upper intestinal tract, stimulating increased activity to hepatic cells and discharge of fresh bile through the bile duct. This product has proven particularly efficacious in offsetting pyorrhea alveolaris and erosions, due to excess of uratic salts in the blood. The action of sulpho-lythin is much like that attributed to calomel, but it exerts no injurious action, even under continuous administration, and it does not interfere with digestion if taken when the stomach is free of food and no food is taken until sufficient time is allowed for it to pass out of the stomach.

### **Thymox.**

A non-toxic anodyne preparation. An effective antiseptic, disinfectant, bactericide, prophylactic, deodorant, and styptic, containing hydrogen dioxide with thymol, menthol and eucalyptol in a standard solution, the coppery taste of peroxide being entirely eliminated. In itself a non-toxic, oxidizing preparation it is useful where formerly carbolic acid, creosote, bichloride, nitrate of silver, and zinc chloride have been indicated. Thymox in its decomposition sets free nascent oxygen and destroys organisms heretofore inaccessible.



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Though mentioned by an essayist last year before this society, it was not included in the *Materia Medica* report, and we think justly should be placed upon the list of new medicaments.

We would suggest that the members of this society take a more active interest in this subject, reporting to the committee all new medicaments with the therapeutic effect obtained by them. Such help on the part of the members would be of inestimable value to the committee in making up a report of this character. Of over 200 letters sent out to the members the number of responses received would not be sufficient reason for the postman to expect an assistant to be placed on his route.

Respectfully submitted,

WILLIAM H. GELSTON, *Chairman.*

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### Report of Clinical Conference Committee.

The Clinical Conference Committee submits the following report of surgical cases presented:

#### Case No. 1.

Fannie G. aged six. Presented by Dr. G. A. Hull, for examination and advice.

#### History.

Last May the patient was admitted to hospital suffering from alveolar abscess due to devitalized pulp in left lower, second temporary molar. Face considerably swollen.

#### Treatment.

Tooth extracted, gum lanced and sac drained. Some weeks later, a second operation consisting of extracting the first molar and making an extensive incision along the jaw to the ramus was done; ramus found necrosed; the bone was scraped, the wound treated by gauze packings and douches. Pus, however, continued to flow.

#### Examination.

Swelling on the left side of the face the size of a man's fist. Deep fluctuation. Child pale. Lower left temporary molars absent. No sign of sixth year molar. Small opening in gum near ascending ramus which allowed a free flow of pus. Probing showed that the periosteum, on the surface of the jaw, extending from the location of the first molar to the angle and almost to the articulation, was denuded. The underlying bone



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was necrosed. Owing to the timidity of child no attempt was made to locate sixth year molar which had not erupted. A diagnosis of necrosis was made.

### **Advice.**

Make free incision along the surface, from location of second molar, well up the ramus. Remove all diseased bone and granulations, pack the wound so as to promote granulations from the bottom and keep it freely open until there is no sign of disease. Prognosis good. If swelling of face should not subside within a couple of months following healing of wound, Dr. Curtis suggested opening the mucous membrane and dissecting away sufficient cellular tissue to reduce the enlargement of the cheek. Pressure over the cheek may be necessary in order that the cavity, caused by the removal of the cellular tissue, may be reduced to the minimum, the healing process facilitated and the contour of the face restored.

### **Case No. 2.**

Mr. W., aged 35. Presented by G. Lenox Curtis, M.D., of New York.

### **History.**

Pulpitis in left lower wisdom tooth. For several months the patient applied cotton saturated with spirits camphor. The gum and cheek finally became sore. Last January a surgeon diagnosed the case to be epithelioma. Microscope verified diagnosis. Case referred to Dr. Curtis two months ago. The face was much swollen. Breath most offensive. All the inside of the cheek, tonsil and soft tissue from symphysis to ramus was one mass of epithelial growth. The entire external surface of the bone of this side was also diseased. The case is now under treatment and is apparently about half healed. Breath sweet. The treatment consists of injection of medicine which cuts off the circulation in the tumor. It is practically bloodless. Dr. Curtis reported that he had successfully treated several cases by this method, and would report the result and the medicine used after he had conclusively demonstrated its efficacy.

There was a distinct line of demarcation between the diseased and healthy parts, much of the growth having come away. The roots of the teeth on this side were fully exposed, the tonsil and the gingival surface of the gum exhibited no signs of the disease. There was a large opening in the face, extending almost to the angle of the mouth.

The bone was brown and the external part was scaling off. With the exception of one place, the size of a fig, near the submaxillary gland, the parts looked healthy.



The case was demonstrated to show what Dr. Curtis hopes will prove to be a more thorough method of treating such cases than that of the usual method of excision.

**Case No. 3.**

Miss R., aged 14. Presented by G. Lenox Curtis, M.D., of New York. Seventeen months ago she had a local anesthetic injected into the gums and the right lower second molar extracted. Intense pain immediately followed the injection, but the tooth was extracted without pain. A few minutes later the skin over the mental foramen the size of a fifty-cent piece turned black. The pain and the ecchymosis continued to increase. As soon as the patient returned home the family physician took charge of the case. The jaw soon became rigid and the face swelled. The following day the jaws were locked and the head was badly swollen. Pus flowed freely from the mouth.

A few days later all of the teeth on the right side of the lower jaw were loose and painful to the touch. The case was diagnosed as septicemia due to infection, and for months the patient's life was despaired of. Five months after the extraction the case was referred to Dr. Curtis for operation. He found that all of the teeth on the lower jaw were loose and those to the right of the left cuspid were very loose. The second bicuspid was held only by the attachment of the periosteum on the lingual surface. The tooth could be projected forward to a horizontal position. All the gum and much of the alveolar process on the external surface of the jaw, extending from the ramus forward to the right cuspid had sloughed away, leaving the roots of the teeth fully exposed. The bone beneath the gum from the right cuspid to the left second molar external to the teeth had also sloughed away, and the gum was ulcerated and badly diseased. When the gum was incised the roots of all the oral teeth were found entirely denuded of bone and the pulps dead.

The operation consisted of first ligating the teeth firmly in position and then burring and curretting away the diseased bone and pus granulations throughout the entire area of the disease and packing the wound with gauze. During the operation the germ of the right wisdom tooth was uncovered and has since fully developed.

Some months later the canals of the teeth were cleaned and filled, and all the roots, except those of the first molar, were amputated at about 1-8 of an inch from their apex. Amputation was necessary because they were decayed from the exposure incident to long continued treatment. The teeth have become firmly attached and restored to usefulness by reason of the reproduction of the alveolar process and gum tissue. This



## ITEMS OF INTEREST

case is doubtless a phenomenal one, but it shows conclusively the value of conservative energy. Much credit was accorded to Dr. Curtis for the successful treatment of this case.

### **Case No. 4.**

Dr. M. presented himself for operation upon a large carbuncle on the back of his neck. Dr. Curtis operated under cocaine anesthesia taking the opportunity to demonstrate the efficacy of volasem as an antidote to cocaine. He first administered 20 drops of volasem by mouth, and after the lapse of one minute injected a dram of a saturated solution of cocaine in and about the carbuncle. Two minutes later he opened the carbuncle and vigorously scraped out its contents and the sac. This required about two minutes of rapid work. The wound was then packed tightly with iodoform gauze. There was not the slightest untoward symptoms from the effect of the cocaine injection nor the least manifestation of pus.

A subsequent report of this case was to the effect that the wound healed within ten days without showing more than one-fourth of an inch of a scar.

J. G. HALSEY, *Chairman.*

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### **Report of the Committee on Oral Hygiene in Public Schools.**

In October, 1905, I received some stationery on which were printed the names of the committee on the Care of Children's Teeth in the Public Schools, consisting of four members, Drs. A. Irwin of Camden, Fred Burdge of Asbury Park, W. D. Rice of New Brunswick, and W. E. Stelle of Plainfield, as chairman.

This was the first I knew of such a committee, and that I was chairman of same. A meeting was called to take place at Newark at the November meeting of the C. D. A. There being no meeting of the society that month it was postponed until the meeting of the following month, at which three members were present. It was decided to have a member appointed for each county in the State.

The chairman sent a letter and a circular letter to each member of the increased committee requesting him to get himself or some other reputable dentist of his town appointed examiner of the children's teeth in the public schools of his city and make a report. Dr. A. S. Bailey of Lakewood reported that he had succeeded in getting himself appointed examiner and had enlisted Drs. Crook and Boble of Toms River to look after the schools in their district, and returned filled out blanks. Dr.



## SOCIETY DISCUSSIONS

Fred Burdge of Asbury Park made strenuous efforts to get oral hygiene introduced in his town, but did not meet with success. Dr. M. R. Brinkman of Hackensack stated he presented the subject to the Hackensack board of education, and the board directed the president to choose four local dentists as examiners and assign them various schools. Dr. S. C. Slade of Vineland informed me he made application to the board of education to have Dr. Sarah Jackson appointed examiner of the children's teeth in the public schools of his town and after much discussion by the board it was tabled. Dr. A. Irwin reported that he succeeded in having Dr. W. H. Gelston appointed examiner in the public schools of Camden. Your chairman presented the subject to the board of education in Plainfield, which resulted in having Dr. Chas. G. Davis, Dr. O. Whitford and himself appointed examiners. After some delay we made examinations at four different periods, examining 253 pupils, getting the work well started, and in hope at the opening of next year's school term to proceed more systematically and do more good work. Of the 253 children examined 194 had tooth brushes, 59 none. 161 used them daily, 33 occasionally. In about 72 per cent. of this number, their teeth required cleaning. 94 per cent. their first permanent molars needed filling, 3 per cent. regulating, 2 per cent. had pitted teeth; 50 per cent. had visited dentists, 50 per cent. had not. 27 per cent. had teeth requiring extraction. None had hare lip nor cleft palate. All readily submitted to having their teeth examined with the exception of three, who after seeing the others examined made no objections. I think a great deal of good can be accomplished in oral hygiene in the public schools, first by getting the pupil interested in his or her teeth; second by calling the parents' attention to the necessity of having the work done and if sent to the dentist (as quite a large percentage will be) saving a great many teeth, particularly the first molars, from having the pulps devitalized by having them filled before decay reaches that point.

We have done this work free of charge, and this is the only way to get oral hygiene introduced in the public schools. Later on compensation will follow, and undoubtedly a stated salary will be given the dental examiner, as now given the medical. We found the children neatly clad, clean hands and faces, but a large percentage with decayed and dirty teeth which only proves the necessity for this work. We hope that all the members of this committee will at an early date get oral hygiene introduced in the public schools of their towns and eventually it will be established in all the schools of New Jersey.

W. E. STEELE, *Chairman.*



# ITEMS OF INTEREST

The treasurer then presented his report. On motion the report was referred to an auditing committee consisting of Drs. Brinkman and Wolsey, which subsequently reported the treasurer's account as accurate.

The treasurer's report, etc., is as follows:

July 20, 1906.

*To the Officers and Members of the New Jersey State Dental Society:*

Your treasurer presents the following report:

|   |          |
|---|----------|
| Balance on hand July 1, 1905.....       | \$999.97 |
| Received from Membership Committee..... | 56.00    |
| Received from Dr. J. E. Duffield.....   | 683.54   |
| Received from dues .....                | 337.00   |

---

\$2,076.51

|                                       |          |
|---------------------------------------|----------|
| Moneys paid out as per vouchers ..... | 1,308.27 |
|---------------------------------------|----------|

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|                       |           |
|-----------------------|-----------|
| Balance in hand ..... | \$ 768.24 |
|-----------------------|-----------|

Approved and found correct.

M. R. BRINKMAN,

W. WOLSEY.

The Membership Committee reported the following applications for membership:

Dr. Louis M. Heckman, Jamesburg, N. J. Sponsors, Drs. Truex and Hindel.

Dr. Archibald E. Boice, Trenton, N. J. Sponsors, Drs. Chase, Ginnelly, and Heazelton.

Dr. Bertram F. Holden, Passaic, N. J. Sponsors, Drs. Luckey and Pruden.

Dr. Wentworth Holmes, Newark, N. J. Sponsors, Drs. Meeker, Woolsey, and Sutphen.

Dr. Francis Woodruff, Newark, N. J. Sponsors, Drs. Jacquith, Halsey, and Brinkman.

Dr. Albert B. Osmun, Morristown, N. J. Sponsors, Drs. Pruden, Rood, and Brinkman.

Dr. Arthur Watson Barber, East Orange, N. J. Sponsors, Drs. Adams, Eaton and Baker.

Dr. Carl Ferrel, Elizabeth, N. J. Sponsors, Drs. Woolsey and Brinkman.

A ballot being taken the above named gentlemen were unanimously elected to membership.



## SOCIETY DISCUSSIONS

On motion the society then proceeded to the election of officers for the ensuing year, which resulted as follows

President, Dr. M. R. Brinkman, Hackensack, N. J.; Vice-President, Dr. Walter Woolsey, Elizabeth, N. J.; Secretary, Dr. Charles A. Meeker, Newark, N. J.; Asst. Secretary, Dr. H. S. Sutphen, Newark, N. J.

Executive Committee—Drs. W. A. Jaquette, Dilts, Iredell, and Gregory.

Membership Committee.—Drs. Rhome, Naylor, Tuttle, Thompson, and Hazelton.

For Recommendation to the Governor for Appointment on the State Board of Examiners.—Dr. W. T. Truex.

On motion a vote of thanks was extended to Senator Bradley for the use of the Auditorium, to the Chief of Police of Asbury Park, and to the Essayists and Clinicians.

President Brinkman then announced the appointment of the following legislative committee: Drs. Dilts, Duffield, Ginnelly, Naylor, Adams, Halsey, and Burdge.

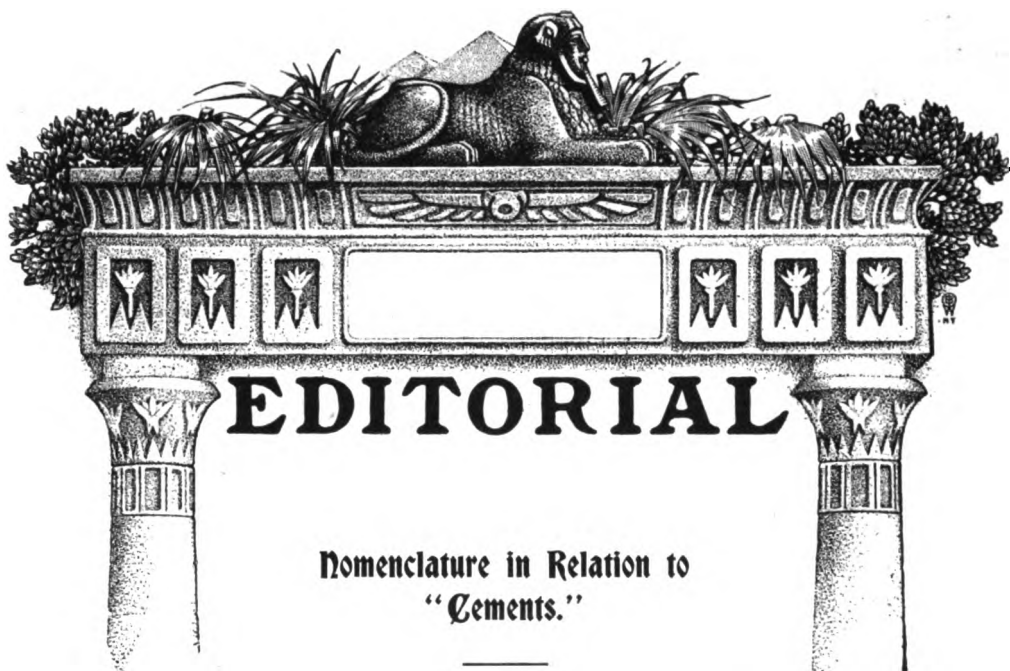
Also as chairman of the essay committee, Dr. Jaquette.

Also of Dr. Dilts as chairman of the clinic committee.

On motion adjourned sine die.







In the evolution, or revolution, now occurring in regard to our methods of filling teeth, a coincidental revolution is taking place in relation to a miscellaneous lot of products, totally unlike in many respects, yet which are all grouped under the general term "cements."

To meet the first demand for a filling material, plastic in its nature, and resembling the tooth in color, dentists were supplied with "bone filling," otherwise known as "os artificial." The oxy-chloride of zinc held sway for many years, but were finally supplanted by the oxy-phosphate of zinc. But whether a chloride or a phosphate, the materials were marketed for the avowed purpose of filling teeth.

**The First  
Demand for  
Cement.**

With the appearance of the shell and the Richmond crowns, a cementing medium became needful, and it was natural that the dentist should utilize the well known "sticky" property of the oxy-phosphate which he found at hand in his cabinet. Thenceforth men spoke of cementing crowns and bridges, and thus what had been a filling material became widely known as a "cement," and the contents of a single package served the double purpose.





**Difference  
Between Cement  
and Filling.**

But there is a wide difference between the requisites of a filling material and what we should use for cementation. A plastic filling material should set somewhat slowly, and should not liberate much heat in this chemical action; it should become densely hard and take a fine polish; it may be used mixed to a thick consistency, and usually may be protected from moisture while hardening. It should approximate the color of the tooth for visible cavities, but may be darker, or carry a powdered metal for other localities, and for temporary teeth.

Cements very shortly will be divided into two classes: those for cementing porcelains, and those for cementing metals to tooth substances. The primary need in a cement must be that it may be used quite thin, and yet retain in position the cemented substance. It would also be very advantageous if a cement could be used regardless of moisture.

In view of the very unlike uses to which the materials are to be put, would it not be well henceforth to discriminate between cements and filling materials? Would it not be better to denominate the cements as "cements" with some designating term which would indicate its special properties, while at the same time calling all the filling materials plastics?

Among the latter we would have the oxy-phosphate filling, the artificial enamels, the oxy-chloride of copper, and the phosphates which carry tin fillings, as well perhaps as the oxy-chloride of zinc still used by some in root canals.

**Transparent  
Cement.**

Among the cements we should have hydraulic cements for crown and bridge cementation; porcelain inlay cement, and gold inlay cement. Between the latter there is a marked difference in requirements. Practically all porcelain inlays are made within a matrix, and therefore fail to accurately fill the tooth cavity to the extent of the thickness of the matrix which is removed. Thus room is provided for a cement made of a granular powder. Nevertheless there has always been a feeling that a transparent, liquid cement for porcelain inlays is a desideratum.

Such a cement is at present in the hands of a few porcelain workers for experimentation. A new principle seems to have been utilized. There are two liquids, the cavity being coated with one and the inlay with the



## ITEMS OF INTEREST

other. When brought together almost instant cementation takes place. It is claimed that this cement resists lactic acid.

With gold inlays the situation is quite different.

### **Special Gold Inlay Cement.**

Whether the inlay be cast or made in a matrix, if the work be accurately done, the fit should be absolute, or nearly so. There is practically no space for cement. We require, therefore, a cement which should flow very readily under pressure. One has just been presented to a few gold inlay workers, of which it is claimed that "it works as smoothly as though it were an oil paint." Again it is evident that the color problem, so troublesome with the porcelain inlay, reaches the minimum of importance when cementing gold.

The signs of the times are that the cement problem will soon be solved; therefore in future we should alter our terminology so as to discriminate between cements and filling materials.

### **Correction.**

Dr. J. E. Hinkins writes as follows:

"On reading over my article I find two mistakes. Will you make the following corrections in the next issue. On page 197 you have spelled propionate "proportionate," and on page 214 the equation should be  $\text{Ca}_3(\text{PO}_4)_2 + 12 \text{HC}_3\text{H}_5\text{O}_3 = 2 \text{H}_3\text{PO}_4 + 3 (\text{Ca C}_8\text{H}_5\text{O}_3)_2 \cdot 2\text{HC}_3\text{H}_5\text{O}_3$ ."







### **Dr. G. Arthur Roberts.**

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Died, April 14, 1907, at his home in Toronto, Canada, G. Arthur Roberts, in his thirty-fourth year.

By the death of Dr. Roberts the dental profession of Ontario loses one of its brightest and most capable members. Although not enjoying good health for some months past his sudden demise came as a great shock to his many friends and associates. He graduated from Philadelphia in '96 and from Toronto in '97. He gave up general practice in June, 1904, since which time he had devoted his efforts exclusively to orthodontia, being the first dentist in Canada to limit his practice to this specialty, and at the time of his death had associated with him Dr. Guy G. Hume. He was examiner in orthodontia for the Royal College of Dental Surgeons and for the Dominion Dental Council.

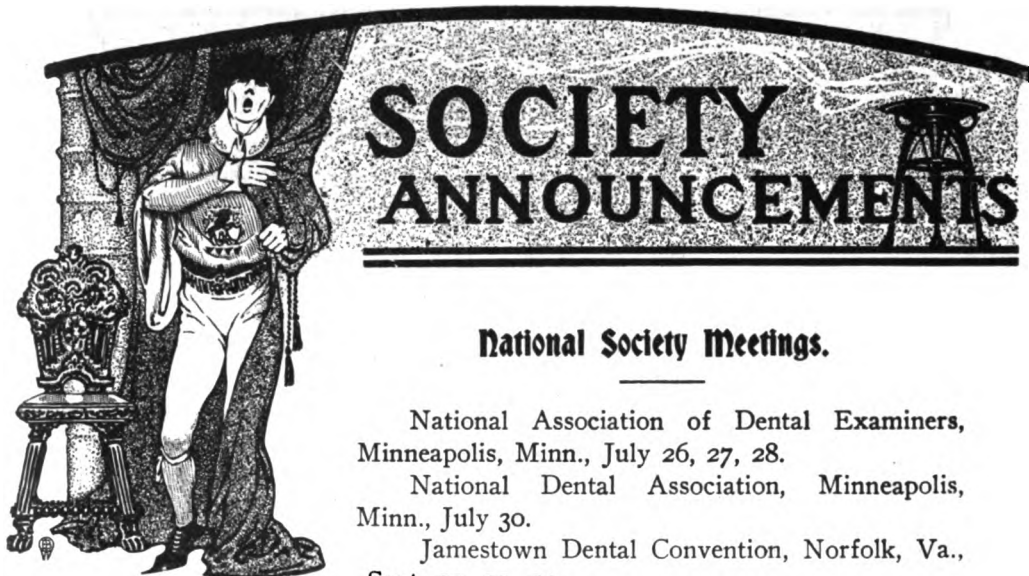
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### **Dr. William N. Tuller.**

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Dr. William Newton Tuller, 24 years old, son of Dr. R. B. Tuller, 100 State Street, died on Wednesday at Carlsbad, N. M., from typhoid fever contracted as he was recovering from an operation for appendicitis. He had gone west a year ago on account of ill health. He was born and educated in Chicago and was a graduate of the Chicago College of Dental Surgeons, of which institution his father has been a member of the faculty for ten years.





### **National Society Meetings.**

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National Association of Dental Examiners,  
Minneapolis, Minn., July 26, 27, 28.

National Dental Association, Minneapolis,  
Minn., July 30.

Jamestown Dental Convention, Norfolk, Va.,  
Sept. 10, 11, 12.

American Society of Orthodontists, Detroit, Mich., Oct. 2, 3, 4.

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### **State Society Meetings.**

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Colorado State Dental Society, Colorado Springs, June 20, 21, 22.

Florida State Dental Society, Atlantic Beach, June 6, 7, 8.

Indiana State Dental Association, Indianapolis, June 11, 12, 13.

Maine Dental Society, July 16.

Minnesota State Dental Association, Minneapolis, July 30, Aug. 3.

Missouri State Dental Association, Kansas City, Mo., June 4, 5, 6.

New Jersey State Dental Society, Asbury Park, July 17, 18, 19.

South Carolina State Dental Association, Anderson.

South Dakota Dental Society, Sioux Falls, June 4, 5, 6.

Tennessee State Dental Association, Knoxville, July 9, 10, 11.

Texas State Dental Association, San Antonio, June 13, 14, 15.

University of Pennsylvania Dental Alumni Society, Philadelphia, Pa.,  
June 15, 17, 18.

Virginia State Dental Association, Jamestown, Sept. 10, 11, 12.

Wisconsin State Dental Society, La Crosse, July 16, 17, 18.





## **National Dental Association Convention.**

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The Plaza Hotel has been secured as headquarters for the coming National Dental Association Convention which meets in Minneapolis, July 30-August 2, and is situated one-half block from where the clinics will be held. Rates, \$2.00 per day and upward. European plan. Rates at other hotels are as follows:

The West Hotel, \$1.00 per day and upward. European plan.

The Nicollet Hotel, \$1.00 per day and upward. European plan.

The Majestic Hotel, \$1.00 per day. European plan.

F. E. COBB, Secretary.

Masonic Temple, Minneapolis, Minn.

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## **Ohio State Board of Dental Examiners.**

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The regular semi-annual meeting of the Board of Dental Examiners of the State of Ohio will be held in Columbus, June 25, 26 and 27, 1907.

Only graduates are eligible to examination.

Application, accompanied by fee (\$20.00), should be filed with the secretary by June 15th. For further information address

H. C. BROWN, Secretary.

185 East State Street, Columbus, Ohio.

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## **Tennessee State Board of Dental Examiners.**

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The Tennessee dental law has been recently so amended, as to require all applicants for registration to be graduates of reputable dental colleges, and they must also pass a written examination by the State Board and give a practical demonstration of proficiency in operative and prosthetic dentistry. Examination fee, \$10.00. With the other important amendments made at the same time, the Tennessee dental law is now on a par with the dental laws of other States.

F. A. SHOTWELL, Secretary.

Rogersville, Tenn.





## **National Dental Association, Section I.**

The following papers have been secured for Section I of the National Dental Association, for the Minneapolis meeting beginning July 30.

1. "The Over-Arch-Bar in Bridgework,"  
Dr. L. C. Bryan, Basel, Switzerland.
2. "Some Practical Experiences Theoretically Expressed,"  
Dr. Emory A. Bryant, Washington, D. C.
3. "Treatment of Malocclusion of the Deciduous Teeth."  
Dr. Guilhelmena P. Mendel, Minneapolis, Minn.
4. "Evolution".....Dr. Charles L. Hungerford, Kansas City, Mo.
5. "The Effect of Excess of Mercury upon Shrinkage, Expansion, Edge-strength, Flow, Change in Composition and Stability of the Dental Amalgam Alloys".....Dr. Marcus L. Ward, Detroit, Mich.
6. "Porcelain".....Dr. C. M. Work, Ottumwa, Iowa.
7. "Physical Condition of or Pertaining to the Human Teeth,"  
Dr. F. G. Corey, Council Grove, Kansas.
8. "Method of Replacing Broken Facings on Crowns and Bridges,"  
Dr. J. V. Conzett, Dubuque, Iowa.

There may be a few additions to the list, as all the returns are not yet in.

D. O. M. LECRON, Chairman, Section I, N. D. A.  
E. P. DAMERON, Secretary, Section I, N. D. A.

## **The Dental Alumni Society, University of Pennsylvania.**

The Twenty-seventh Annual Meeting of the Dental Alumni Society of the University of Pennsylvania will be held in Philadelphia, June 15th, 17th and 18th, 1907.

This will be an extremely interesting meeting, the number of clinics and social features being unusually large.

### **The Program.**

**Saturday, June 15th.**

3 P. M.: Aquatic sports in the Gymnasium pool. Races, water-polo and fancy swimming. 4 P. M.: Varsity Baseball Team vs. Graduates, Franklin Field, admission free. 6 P. M.: Alumni supper, Weightman Hall Gymnasium. 7.45 P. M.: Annual business meeting, General Alumni Society, Weightman Hall. 8 P. M.: Reception to wives of Alumni, Houston



## SOCIETY ANNOUNCEMENTS

Hall and adjoining campus. 8.30 P. M.: Reunion of classes in the Dormitory Triangle and lighting of the bonfire. Special quarters for alumni of the Dental Department.

### **Monday, June 17th.**

10 A. M.: Clinics and demonstrations, Dental Hall, both morning and afternoon. 7 P. M.: The Twenty-seventh annual banquet, Dental Alumni Society, The Bartram.

### **Tuesday, June 18th.**

10 A. M.: Annual business meeting, Dental Hall. 2 P. M.: University grounds and buildings open for inspection.

There will be special rates on all railroads. For further information, address,

VICTOR COCHRAN, Sec'y.

1628 N. 17th Street, Philadelphia, Pa.

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## **Virginia State Board of Dental Examiners.**

The next meeting of the Virginia State Board of Dental Examiners will be held at the Medical College of Virginia, in Richmond, Va., beginning Tuesday morning, June 11th, 1907, at 9 o'clock.

R. H. WALKER, Secretary.

Norfolk, Va.

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## **Wisconsin State Board of Dental Examiners.**

The next meeting of the Wisconsin State Board of Dental Examiners for examination of candidates for license to practice dentistry in Wisconsin will be held Monday, June 10th, 1907, at the Wisconsin College of Physicians and Surgeons, Milwaukee, Wis.

Application must be made to the secretary fifteen days before examination. The candidate must be a graduate of a reputable dental college, or have been engaged in the reputable practice of dentistry for four consecutive years, or an apprentice to a reputable dentist for five years.

For further particulars apply to

J. J. WRIGHT, Secretary.

1218 Wells Building, Milwaukee, Wis.





### **Minnesota State Board of Dental Examiners.**

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The State Board of Dental Examiners of Minnesota will hold a special meeting at the Dental Building of the State University in Minneapolis on June 6, 7 and 8, 1907. All applications must be in the hands of the secretary by 10 o'clock, June 6th, as examinations will begin at 10.30 o'clock sharp. All blanks, paper and patients supplied by the board. Operating instruments, etc., must be brought by the applicant. Any further information will be given by addressing

GEO. S. TODD, Secretary.

Lake City, Minn.

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### **Pennsylvania State Board of Dental Examiners.**

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The Board of Dental Examiners of Pennsylvania will conduct examinations simultaneously in Philadelphia and Pittsburg, June 12 and 15, 1907. For application papers and full particulars address

DR. NATHAN C. SCHAEFFER, Secretary Dental Council.  
Harrisburg, Pa.

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### **Rhode Island Board of Registration in Dentistry.**

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The Rhode Island Board of Registration in Dentistry will meet for the examination of candidates at the State House, Providence, R. I., Tuesday, Wednesday, and Thursday, July 9, 10, and 11, 1907. Application blanks and particulars may be obtained from

W. S. KENYON, Secretary.

301 Westminster St., Providence, R. I.

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### **District of Columbia Board of Dental Examiners.**

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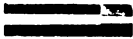
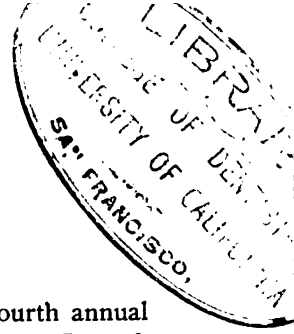
The Board of Dental Examiners of the District of Columbia will conduct their semi-annual examination July 1st, 2d and 3d.

All applications for examination must be accompanied by a fee of Ten Dollars, and should be filed with

WILLIAM B. DALY, Secretary.

1340 New York Avenue, N. W., Washington, D. C.





## **Florida State Dental Society.**

The Florida State Dental Society will hold its twenty-fourth annual meeting in the Continental Hotel, at Atlantic Beach, Thursday, June 6, continuing in session three days. All ethical practitioners are cordially invited to attend.

C. H. FRINK, Corresponding Secretary.

Fernandina, Fla.

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## **Missouri State Dental Association.**

The next annual meeting of the Missouri State Dental Association will convene in Kansas City, Mo., June 4, 5 and 6, 1907. A most interesting and profitable meeting is anticipated. All ethical members of the profession are cordially invited to attend.

F. G. WORTHLEY, President, Kansas City, Mo.

E. P. DAMERON, Cor. Sec'y, St. Louis, Mo.

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## **North Carolina State Board of Dental Examiners.**

The next meeting of the North Carolina Board of Dental Examiners will be held at Morehead City, N. C., June 24th, 25th and 26th, 1907. Applicants must register on or before 9 A. M., June 24th.

For further particulars, address

R. H. JONES, Secretary.

Winston-Salem, N. C.

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## **Maine Dental Society.**

The forty-second annual meeting of the Maine Dental Society will be held, beginning on the third Tuesday of July, at a place to be determined by the Executive Committee at a later time.

H. A. KELLEY, Secretary.





### **California Board of Dental Examiners.**

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At the last examination held in December by the Board of Dental Examiners of California, there were forty-seven applicants of whom twenty-four were successful and were granted licenses. The next examination will be held in Los Angeles, beginning on the second Monday in June. This will be followed by an examination in San Francisco, beginning on the third Monday in June. Officers were elected for the ensuing year as follows: President, Dr. Garrett Newkirk, Pasadena; secretary, Dr. C. A. Herrick, Jackson; and treasurer, Dr. Joseph Loran Pease, Oakland.

C. A. HERRICK,  
Secretary Board of Dental Examiners.

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### **Indiana State Board of Dental Examiners.**

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The next regular meeting of the Indiana State Board of Dental Examiners will be held in the Capitol at Indianapolis, June 11, 12, and 13, 1907. All applicants for examination to practice in the State should apply to the secretary for further information, blanks, etc. Applications for examination must be in the hands of the secretary at least five days before the above date.

F. R. HENSHAW, Secretary.

Middletown, Ind.

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### **Oklahoma Board of Dental Examiners.**

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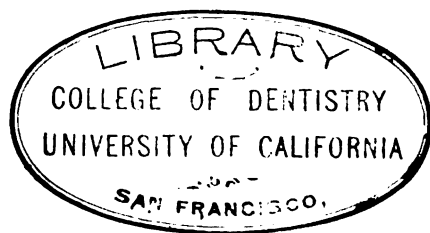
The Oklahoma Board of Dental Examiners will hold its next meeting at Oklahoma City, June 17, 18, 19, 1907.

Candidates will be furnished with proper blanks and such other information as is necessary upon application to the secretary.

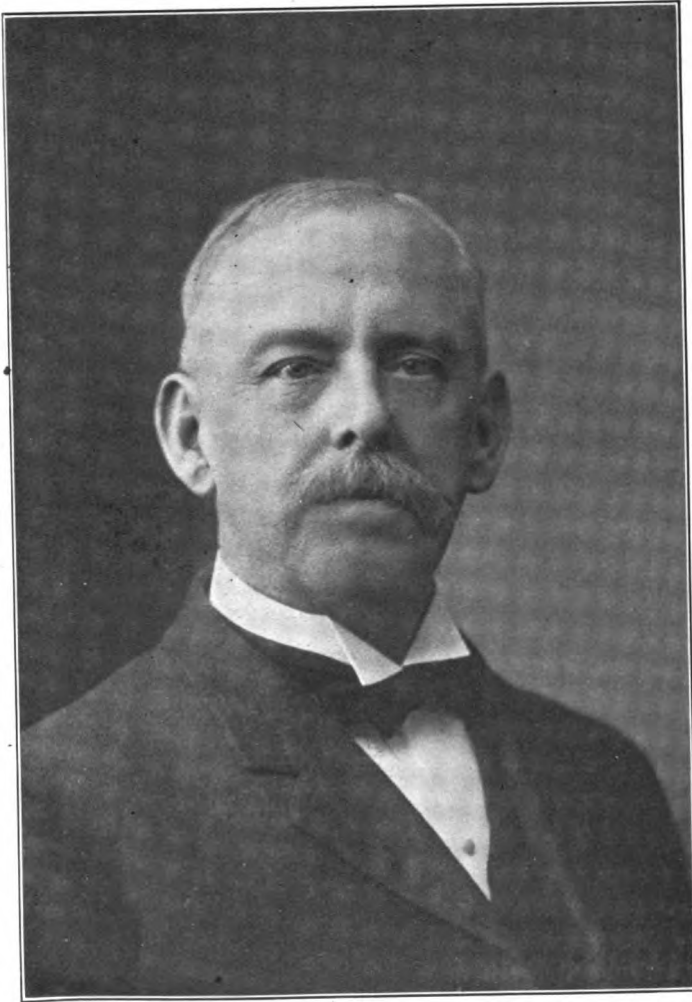
A. C. HIXON, Secretary.

Guthrie, Okla.









DR. RICHARD C. BREWSTER.





## **The Principles and Practice of Filling Teeth with Porcelain.\***

By DR. JOHN Q. BYRAM, Indianapolis, Ind.

### **Preparation of Cavities.**

It is essential that the beginner in inlay work should understand the principles of cavity preparation. Disregarding this foundation work, many dentists have become discouraged, because they began to construct inlays for practical cases before they had studied these principles. The change in the method of cavity formation is not a difficult one, even though the operator has been preparing cavities for gold and amalgam fillings for a long time, provided he understands thoroughly the principles of retention for the different fillings.

The preparation of many cavities for inlays requires the sacrifice of sound tooth structure in order to secure the necessary retentive resistance, to prevent frail margins of porcelain, and to obtain proper color effects. In many instances it has been found that more sound tooth structure is involved in the preparation of the cavity for an inlay than for gold filling. All frail enamel should be removed. Most porcelain workers agree that the cavity should be prepared so that the inlay will have all the retentive resistance possible; that parallel walls in cavities are to be avoided, and that the walls should diverge slightly

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## ITEMS OF INTEREST

toward the margin instead of converging. It should be borne in mind that porcelain is a friable material, and that its strength is approximately equal to that of enamel. These facts are frequently disregarded, and the cavity is not prepared with the view to making the inlay as strong as possible. Too often carelessness in cavity preparation is the cause of weak margins of porcelain, and these, in turn, render the filling im-

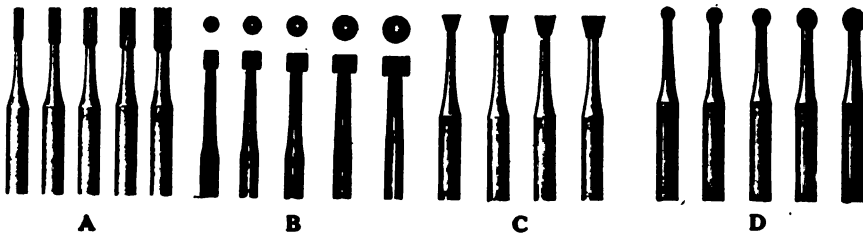


FIG.4

perfect. In such cases there is a tendency to attribute the imperfection of the filling to the material used rather than to the method employed.

In illustrating cavity preparation with drawings and photographs of plaster models of teeth, it must be borne in mind that cavities pre-

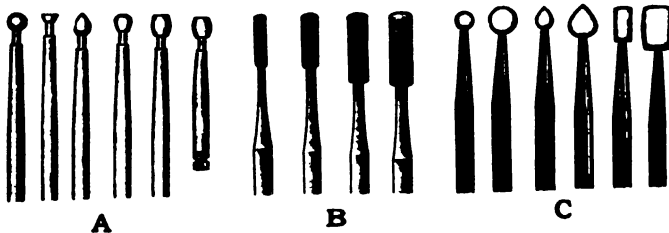


FIG.5

pared in such models are diagrammatic, and that they are only intended to illustrate principles. An attempt will be made to give examples of the various forms of cavity preparation used in filling teeth with porcelain. Many of these forms may appear to involve the sacrifice of an unnecessary proportion of tooth structure, but such sacrifice insures better retentive resistance and a stronger mass of porcelain.

The preparation of cavities for porcelain inlays requires but few special instruments. Figs. 4 and 5 represent the forms of burs and stones that are particularly indicated in this work. These instruments should be obtained for both the straight and the angle hand piece.

### Instruments.



Fig. 4, A, represents the regular forms of flat faced fissure burs. Fig. 4, B, C and D, represent finishing burs, cylindrical, inverted cone and round in form. These burs are useful in shaping and finishing the walls and margins of cavities.

Fig. 5, A and B, represent cavity trimmers and diamond burs. They are useful in cutting away enamel and shaping cavities. The grit is fine and they leave the surface smooth.

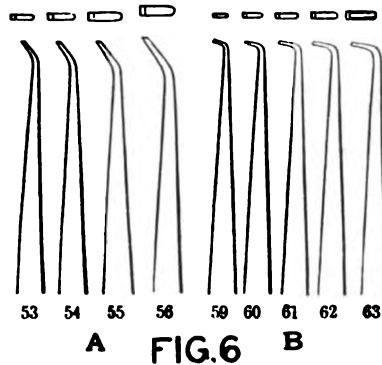
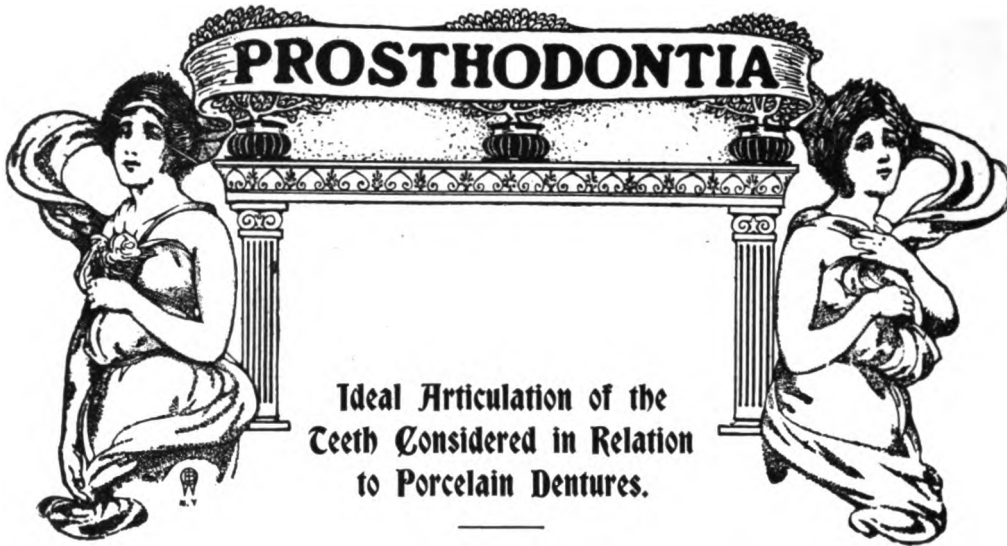


Fig. 5, C, represents different shapes of Arkansas stones that may be used in finishing the margins and cavities. It is not intended that they be used for grinding to any considerable extent, but to polish the margins.

Fig. 6 shows two forms of hoe excavators that are useful in shaping the walls of cavities and giving to them definite angles. A represents that form which is useful in shaping the gingival wall, while B represents the form that is useful in shaping the axial walls.





By DR. STEWART J. SPENCE, Chattanooga, Tenn.

## II.

In order to direct the occlusal plane as prescribed in Rule II (that is, toward the joints), and yet have the path arranged relative to the plane in any position desired, most of the three-motioned articulators need to be altered; either the path should be made adjustable, as is done in the Kerr, or the upper jaw of the frame should be raised an inch or so. This latter arrangement is illustrated in Fig. 4, where *a b c* is the articulator. If the space between *b* and *c* is wide enough it will permit of placing the occlusal plane in different positions relative to the path *a d*, as shown by the lines *e f*, *g h* and *i j*; and this, though somewhat clumsily, answers the same purpose as would an adjustable pathway. The path (*a d*) is here shown inclined downward. As this path line has the same inclination as the occlusal plane line *i j*, teeth set up on the line *i j* would be correct for a horizontal path in the patient, while teeth set up with their occlusal plane corresponding to *g h* would be correct for natural paths inclined to the extent of *a g* in Fig. 3. By setting the teeth on the line *e f* an acute downward incline in the patient would be correctly met.

If the jaws of the articulator are not set parallel to each other, but inclined either inward to or outward from each other, this, because it changes the position of the path relatively to the occlusal plane, has a similar effect to placing the plane in different positions; because the path



# PROSTHODONTIA

is attached to the jaw of the frame and is raised or lowered with it. It is therefore important to set the jaws of the articulator parallel with each other, and so set them by the thumbscrew, before affixing the models. Besides, when so set parallel the dentist may, if occasion requires, change their positions to farther out or nearer in without changing

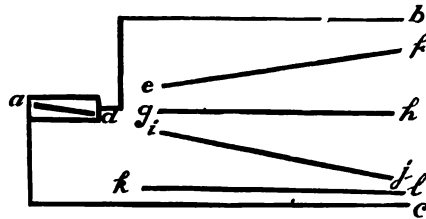


FIG. 4.

their occlusal relations to each other. Those three-motioned articulators which hinge at top instead of middle, although, for reasons already assigned, erroneous in other respects, may be correctly used for this, because although the occlusal plane can not be directed to their joints, yet if it is parallel with such direction, the result will be the same. Thus the line *l l*, Fig. 4, being parallel to the line *g h*, bears, in this respect, the same relation to *a d* as does *g h*.

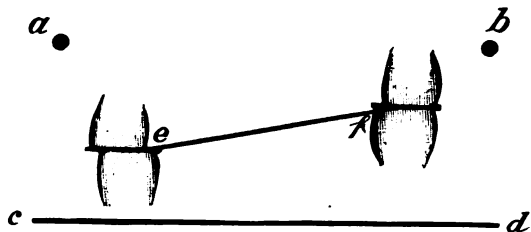


FIG. 5.

**Properly Setting  
Casts on  
Articulators.**

If Rule II be observed it follows that the casts will not be set on the articulators careened, that is, with one side lower than the other, because if each occlusal plane is directed to a joint they must be equally high.



## ITEMS OF INTEREST

When the casts are careened the teeth set up on them are very apt to be misplaced, because the dentist (unless studiously avoiding it) will set them perpendicular to the base of the articulator rather than perpendicular to the plane of the careened models. This is shown in Fig. 5, where  $a b$  are the joints of the articulator and  $c d$  the base thereof, and the line  $e f$  is the tilted plane of the models. It is seen that the teeth are set perpendicular to  $c d$  instead of  $e f$ . The result, when the teeth are transferred to the mouth, is shown in Fig. 6, where the bicuspid and molars are seen tilted in a way that must seriously affect occlusion in the lateral bite. The canine and incisors, however, will be correctly aligned with the lips. Should the dentist make the mistake of setting these front teeth parallel with the base of the articulator (the line  $c d$ , Fig. 6), he will have the added bad result that they will slope downward from one canine to the other when transferred to

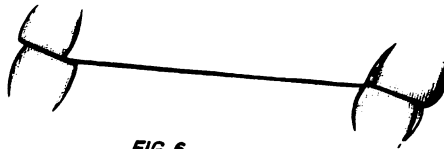


FIG. 6.

the mouth, causing one canine to be pendulous to the other with a sudden elevation of the bicuspid behind this pendulous canine if in the upper jaw; the reverse in the lower.

If the casts are not thus careened, but if the dentists make the mistake of setting the bicuspid and molars higher on one side of the models than on the other (an error apt to occur when absorption has been greater on one side), there will be no injury to occlusion in either of the three bites because the grinders are on parallel planes and also the teeth will correctly make simultaneous occlusion in both lateral and incisive bites, but as it is evident that there must be a descent from a higher to a lower level, and as this descent must take place at the incisors and cuspids, therefore teeth so set up will on removal to the mouth slope in front, one of the cuspids being conspicuously lower than the other.

### **Rule III.**

*The models should be placed on the articulator so that the lower incisor point will be distant from each joint as far as each joint is from the other.*

In other words, these three points should be at the three angles of an equilateral triangle. This rule is intended to prevent the misplacement of the incisor point both laterally and antero-posteriorly.



# PROSTHODONTIA

This, like the preceding rule, is especially important with teeth of generous breadth of occlusal surface and height of cusp—that is, naturally-shaped teeth—because in the lateral bite the cusps of the lower teeth pass those of the upper (in making the movement *c a* in Fig. 2), and if the cast is misplaced to the left or right, or if it is placed askew, the cusps, when transferred from the articulator to the mouth, will collide in passing. Fig. 7 will make this evident.

Let *a b* be the two joints of the articulator, and let *c d e* be a cast correctly placed. The teeth placed on this cast are so set that when the lower jaw is swung on the joint *b* the cusps, in the lateral bite, will travel the arcs as shown in the figure, thus having *b* for their center. Now, suppose the cast has been misplaced, as shown in *f g h*, the in-

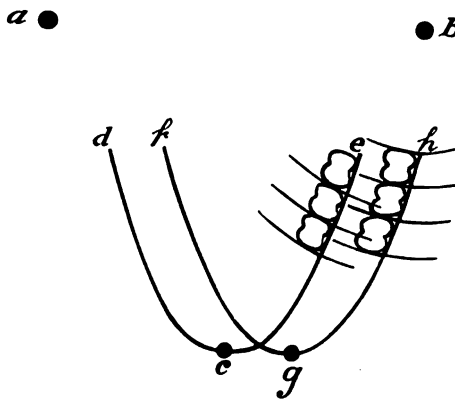


FIG. 7.

cisor point, together with the entire cast, being shifted about a half-inch to the left; the result will be that teeth set up on such a misplaced cast must be placed as shown at *h* in order that they should swing from *b* as center. The divergence of the *h* arcs from the *e* arcs make it evident that when teeth so set up are placed in the mouth, and thus in the correct position shown by *c d e*, they will fail to properly occlude, except in full occlusion. A nearly similar malocclusion will result from placing the cast askew, that is, with its two posterior ends not equidistant from the joints; and if added to this error, the incisor point also is misplaced to right or left, then is "confusion worse confounded."

It is therefore important that casts be placed on the articulator so that the points *a b c* form an equilateral triangle, and so that the "heels" of the model be equidistant from the joints.



## ITEMS OF INTEREST

### Faulty, Articulators.

Unfortunately our articulators have no device for changing the distance from joint to joint, but are made about four inches apart. While four inches may be the *average* measurement from condyle to condyle, in the human subject, it is certain that some jaws are wider and others narrower. My own, for instance, measures five and three-quarter inches (outside measurement, of course), while that of my neighbor, Dr. Williams, is only five inches. Now, as I am rather above the common size and he somewhat below it, while neither are extreme, and as we differ three-quarters of an inch in breadth of condyles, it is quite safe to infer that extreme cases vary an inch or even more. Deducting about twenty-five per cent. because of these being outside measurements, we have still left at least three-quarters of an inch variation, in extreme cases, for which our articulators make no provision.

That the lower jaw is usually an equilateral triangle was demonstrated by Bonwill; therefore if it measures four inches from condyle to condyle it will usually measure four inches from each condyle to the incisor point, but if it is only three and one-half inches from condyle to condyle, it probably will be three and one-half inches to the incisor point. It were absurd to suppose that if the distance of any given case were three and one-half inches between the incisor point and condyle, it must nevertheless be four inches between condyles. Yet on such a supposition our frames are constructed. Fig. 8 will show the result.

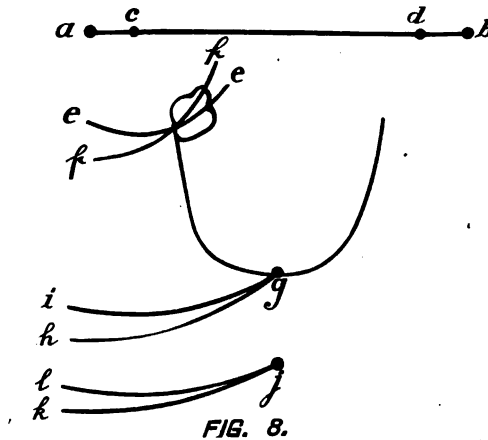
Let  $a b$  be particular joints four inches apart, and let  $c d$  be ditto three inches apart. Now the arc of a circle drawn from the farther joint  $a$  will travel a route much divergent from one drawn from  $c$ , as is shown by comparing the arc  $f f'$  with the arc  $e e'$ , the former being from  $a$ , the latter from  $c$ . Because of this error, a denture articulated on a four-inch articulator would, on being transferred to the mouth of a patient having only three inches of separation of condyles, undergo collision of cusps in the lateral bite.

It is probable that no face is so narrow as to have only three inches of separation of condyles, but doubtless some have only three and one-half inches, and that would make a serious divergence, as may be seen by imagining an arc lying between the two arcs  $e e'$  and  $f f'$ . These facts seem to me to call for a reform in articulators, the more so because it is not difficult to measure the distance from condyle to condyle on the patient. A pair of dividers, somewhat curved in their arms, or Dr. Snow's face-bow will do this easily.

In Fig. 8,  $a b j$  is an equilateral triangle and  $c d g$  is another. It will be observed that the nearer the arcs are to the joints the greater is



their divergence from one another. For this reason, if the articulator in use is rigidly fixed at four inches between joints, it is better to set the cast out to four inches also, even though the patient's condyles be less than four inches apart. It must not be thought, however, that by setting the cast very far out, the arcs can be brought together, for their divergence decreases in lessening degree, and at four more inches out from *j* the decrease from *j* is only as much as it is in the one inch from *g* to *j*.



A serious objection, however, to thus setting the casts farther out on the articulator than the teeth will be in the mouth, is that it interferes with opening or closing the bite. For if the cast is set farther out on the articulator than the plate will be in the mouth, and if then the bite is opened, the result is that the teeth will occlude first at the molars, and *vice versa*. Of course this can be avoided by taking the wax bite so correctly that it will not need to be opened nor closed; but it would be pleasant to have articulators which would not make this necessary. If the wax bite is no farther out on the articulator than the plate will be in the mouth, it can not matter (so far as too early occlusion of anterior or posterior teeth is concerned) how much the bite is afterward opened or shut; and if the wax bite be of the required thickness, so that the jaws of the articulator are neither closed nor opened afterward, it can not matter whether the wax bite be four inches or four miles from the joints, for it is evident that a wax bite can be returned to any mouth from which it has been taken; and the plates are duplicates in form of the wax bite. But, as aforesaid, it makes quite a difference if the wax bite is placed too far out or too far in and the bite then opened or shut.



## ITEMS OF INTEREST

I think it was Dr. Gritman who first called general attention to this matter.

Let me add that this evil is the worse the shorter is the distance from joint to model. For instance, if the distance from the patient's *X* joint to his incisors be three and one-half inches and the dentist set his cast out four inches, the result is worse than if the patient's distance were four inches and the dentist set the model out proportionately,

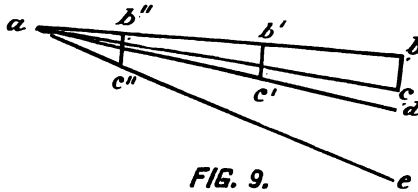


FIG. 9.

that is, a little over four and a half inches. The reason for this is apparent from Fig. 9, where *a b c* is a triangle opened to the extent of the line *b c*. Now, by placing said line about a half inch back toward the angle *a*, as at *b' c'*, the triangle is opened only as far as *d*, but by placing the line still further back a similar distance (to *b'' c''*) it is



FIG. 10.

opened to the wide extent shown at *e*. Thus the nearer we get the models to the joints the more any error counts.

Fig. 10 will show that if a wax bite is placed four and one-half inches from the joints when it ought to be only four inches, and if the bite is then opened one-quarter of an inch at the incisors, the plates when removed to the mouth will fall short of occluding by an eighth of an inch at the incisors. Here the quadrangle inclosed in the heavy lines is the wax bite, on removal of which, let us suppose, the bite is opened one-quarter of an inch so that the trial plates and teeth will, when made, occupy the quadrangle *a b c d*. Now suppose this is a half inch too far out on the articulator, so that when transferred to the mouth the dentures will occupy the position of *a' b' c' d'*, the result would be as shown by the line *e f*, the incisor region failing to occlude by over

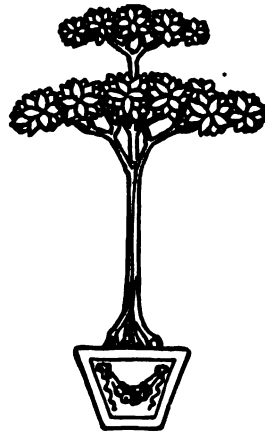


## PROSTHODONTIA

one-eighth of an inch, if the third molars are present, and about one-eighth of an inch if absent. (The figure is drawn half size and the third molars are supposed to be included.)

The conclusions to be drawn from all this are, that articulators ought to be made adjustable between joints, and the distance from the X joint to the incisor point ought to be measured in each case, but that so long as articulators are rigidly fixed at four inches between joints, it is perhaps best to fix the distance from joints to incisor point at four inches also, because the error illustrated by Fig. 10 can be avoided by taking the wax bite right as regards the extent of opening given the jaws, while the error shown by Fig. 8 can not be avoided.

The dentist will find a divider useful for getting the incisor point equi-distant from the joints of the articulator in setting the model thereon. This instrument, opened to the width of the joints will, when carried first from one joint, then from the other to the incisor region, soon indicate the correct position for said joints. All articulators ought to be made with both upper and lower bows adjustable antero-posteriorly so that this matter can be corrected if by chance the models get set at a wrong distance from the joints. To allow such shifting, however, the bows must be parallel.







## **American Society of Orthodontists.**

### **Afternoon Session.**

### **Dr. Casto, Chairman.**

### **Discussion.**

**Dr. O. W. White,  
Detroit.**

I have listened with great pleasure to the paper which Dr. Ferris has presented to us this afternoon. I congratulate Dr. Ferris on the able manner in which he has introduced this subject to the society. It is the first time oral prophylaxis has been presented to us, and I hope it will not be the last.

Dr. Ferris has left one important branch of oral prophylaxis out of his paper; viz.: the mechanical treatment. While the orthodontist is handicapped to a large extent by the appliances in the mouth during treatment, still we should carry out this part of oral prophylaxis as much as possible, for the benefit derived can not but be a great aid to our patients in maintaining a healthy condition of the oral cavity.

When a patient presents himself for treatment for malocclusion, we should be just as insistent about the general health of the mouth as we are of the teeth. I find that if a patient starts out with a clean mouth, and we maintain it in that condition, we have no fear of embarrassment from injury to the teeth during treatment.

I would like to have Dr. Ferris tell us his success in preventing decay when erosion has already taken place on the enamel.

I have observed some work of Dr. Grace Rogers, of Detroit, and



## ORTHODONTIA

she has prevented decay where erosion has occurred. A few years ago this was considered impossible.

The formulae which Dr. Ferris has given us to be used as sprays seem to me to be ideal if they do not affect the appliances.

We must educate our patients in this line of work, and our instructions should be carried out fully by the patient if we wish to be successful. I wish to show a little brush which has been a great aid to me with my young patients. It is called the "Rolling Tooth Brush," and with it a patient can reach all the surfaces when appliances are in position.

I was very much pleased to be present when Dr. Ferris was reading his paper bearing upon the value of asepsis and antiseptics about the mouth during the introduction of orthopedic measures. No doubt the soft tissues are frequently impinged upon in the adjustment of regulating appliances, and whenever such is the case, there is always a possibility of infection.

I am much pleased with the character of work the doctor has been conducting in testing the true merits of various mouth washes, and the best means of keeping instruments in an aseptic condition ready for use. The latter is a problem not easily overcome in the dental office, and I feel confident the adoption of the test tube method of having the ligatures remain sterile until used will be a helpful one for the orthodontist as well as the general practitioner of dentistry.

It has been said that dentists pay but little attention to this part of their work, and I think some of you gentlemen ought to reply to this accusation, or slur.

Dr. Ottolengui says we ought to answer the slur cast on orthodontists as regards prophylaxis. I am not sure but that a great deal of it has been merited. In visiting many orthodontists and dentists I have found them working on many patients, one succeeding another, and found many had but one or two instruments of a kind, such as pliers, scissors, etc. When asked how they sterilized them, I found they simply wiped them off with towel or napkin. They did not sterilize. I think the paper very timely indeed. The metal spray which the doctor recommends is the only one which can always be sterilized. The hard rubber sprays are practically useless.

I would criticize Dr. Ferris's statement, "that we deal with patients of low vitality, due to adenoids, enlarged tonsils," etc. I would say, however, that these are the results of this lowered vitality, all the results of a common cause. They aggravate the irregularity, but are not the chief cause of it.



## ITEMS OF INTEREST

The paper should do good as it goes out in the dental prints. I hope it will make us all more careful. Another point as to mouth washes. The doctor says we can not have a pleasant spray and have it efficient. I have had much difficulty in getting patients to use an unpleasant one. They simply refuse. I would ask the doctor to turn his attention to the production of a wash that the patient will use.

**Dr. Abell.** Regarding the care of ligatures. In hunting for glass tubes in which to keep them, I went to a surgical supply house, where I found a catheter case with a screw cap. I sterilize the wires and place them in this. You can pick out one wire at a time as it is needed, leaving the rest in a sanitary condition.

**Dr. Milton Watson.** I thoroughly appreciate the paper, and also the fact that it deals with a subject which has not received sufficient attention. I think there has been a tendency to be a little careless along this particular line, and, while it is true that most of our work is of such a nature that we do not come into contact with actual wounds, and as a result the probability of infection is of course greatly lessened, yet that really does not justify the carelessness which is more or less common.

The difficulty in attempting to follow out the plan outlined by Dr. Ferris is, if I understand him correctly, that it would require ten or fifteen minutes for each patient, and that becomes a more or less serious matter unless possibly our assistants could be trained to do the work. With a faithful, conscientious assistant, I see no reason why this work could not be performed, and still be well done, without infringing upon the time of a busy man.

**Dr. Ulsick.** I think the paper most excellent and useful to us. I would like to ask the doctor what he thinks about the use of cement in adjusting clamp bands? Some of us have been taught that the use of cement under such circumstances is unnecessary, unless the case is to require some time in its correction. I believe it to be absolutely wrong not to use cement, and that such a course is injurious to the teeth.

**Dr. E. H. Bogue.** Some of my professional brethren have referred patients to me; in one instance I found every tooth surrounded with a band, and there was no cement anywhere. This was inviting decay. A clean tooth never decays. Anti-septic surgery is clean surgery. There is such a thing as a finicky condition about some things and entire carelessness about others. I am glad Dr. Visick has referred to this matter of cement under bands. I know



there has been a course of instruction in which the use of cement was not deemed necessary in placing these bands.

I have on my operating table, within reach of my hand, five teeth taken from among one hundred, which one hundred teeth were covered with melted beeswax and then some portion of the enamel exposed to an extent equaling about one-eighth of an inch in diameter. Those one hundred teeth had been placed in saliva containing a little bread, and kept at blood heat for ninety days. In ninety days every one of those one hundred teeth showed decay. The object of the experiment was to learn whether the density of teeth has anything to do with the progress made by decay. If that can take place, imagine what could take place under uncemented bands!

We should be much more careful in the directions given to parents with reference to care of the mouths of the children, and this, with our own efforts, should keep them, if not absolutely aseptic, at least as nearly clean as possible under the circumstances.

I think one point in the paper covers a great deal; i. e., lack of resistance. We know we are dealing with cases where there is a great lack of resistance, and every precaution should be taken. We are dealing with cases where there is very often hypertrophy of lymphoid tissue. We were told yesterday how rapidly bacteria multiply in that tissue. The bacteria are there ready to attack when we are applying ligatures and wounding the gum. We should be careful to see that those places are kept free from these bacteria, and the most effective way is the use of a spray, under pressure. Remember, further, there is a direct connection of the blood supply and peridental membrane. Following the wounding of the gum, an infection may be carried to the peridental membrane, which means pain. We must relieve as much pain in our work as possible. We can help do this by keeping a sterile field.

In the matter of boiling sharp instruments, I think the edges will be left in better shape if carbolic acid, etc., be used instead of boiling.

In answer to Dr. White's remarks with reference to the acid erosion, it is a general subject which has been pretty well covered before. If there is any truth that the colloidal copper given off from these copper bands is antiseptic, which my experiments have proven, then we can explain why a band may remain on a tooth for a limited period without producing any erosion provided it has been fitted properly. The products of decomposition will not take place in the presence of an antiseptic; therefore you would not have acid present; consequently you would not have

**Dr. Strang.**

**Dr. H. C. Ferris.**



## ITEMS OF INTEREST

the same result under the hand where the colloidal copper is given off. If the bands are made of gold or platinum, I believe the action of erosion would be increased, because you have no antiseptic action. The colloidal copper solution has been proven to be antiseptic beyond a doubt. It can be tested by placing all kinds of bacteria in a polished bowl of copper. In an hour's time the solution will become sterile. This subject has been covered in a previous paper by Dr. Harlan.

The above remarks reply to Dr. Visick as well as Dr. White.

One of the gentlemen spoke of the enlarged tonsils. I simply touched upon that in this way: we invariably have an abnormal condition of the mucous membrane and the tonsils (at least in a large percentage of the cases). If we add something to the part which increases the tendency to the formation of acids, by allowing the accumulation of foods and their decomposition, we increase the irritation of those already irritated tonsils because of the presence of the acids, but that acid condition does not necessarily produce an infection, but lowers the vitality of the tissue, rendering them susceptible to infection.

As to Dr. Watson's remarks, I think his method is excellent. Fifteen minutes does not seem much time, but in seeing many patients it amounts to hours, and while we can not neglect this care we can engage assistants to do this work for us. With this system of sprays that I have introduced here it is not a matter of theory, but of actual observation. Your iodine turns the bacterial plaques on the teeth brown. I can dissolve the plaques away with another spray. Any good office attendant can do that work for you, but you must allow four or five minutes for each chemical reaction.

In replying to Dr. Bogue, I may say the experiments he has carried out with the teeth seem to be a little unscientific. A solution of saliva introduced into an incubator will contain a certain percentage of bacteria. Any bacteria will multiply many times in a couple of hours. If you take saliva and introduce it into an incubator where the conditions are favorable, the bacteria will multiply until its toxin is formed. An abnormal quantity of acid would be formed, owing to the growth of the bacteria. Therefore, in order to carry out experiments as the doctor has suggested, you have actually to keep track of the number of bacteria which you had in your solution: you would have to introduce a certain number of them into a certain quantity of saliva, and keep track of them in that way. I think that would be a hard method.

Dr. Strang mentioned the use of carbolic acid. That is a consideration that is not vital. Some instruments, if very delicate, are affected by boiling, partly from the action of chlorine in the solution; carbonate of



soda counteracts the acidity. The action of carbolic acid, in dilute form, will also affect the instruments. A razor immersed in a dilute acid solution will be affected at its edge. If the solution is alkaline, the result will be very much better.

Any method used to sterilize your instruments is a step in the right direction, I am sure.

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## **Use and Application of Inter-maxillary Force.**

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By DR. NORMAN G. REOCH, Boston, Mass.

*Read before the American Society of Orthodontists, December, 1906.*

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It often happens in original research, that scientific minds, working entirely independently of each other, may simultaneously startle the world with some great discovery. Inventors in devising improved methods to secure greater economy, or efficiency in the industrial arts, frequently arrive at the same conclusions. No doubt various instances of this kind may occur to you.

In 1893, at the International Dental Congress of the Columbian Exposition, Dr. Calvin S. Chase read a paper, in which he first brought to light the use of inter-maxillary force. Shortly after this period, Dr. H. A. Baker, of Boston, without knowledge of Dr. Case's discovery, commenced the correction of a case of distal occlusion in his son, employing the elastic force.

As to who deserves the credit of first using and publishing the use of inter-maxillary force, I do not think there can be a question in our minds. That honor belongs to Dr. Case, of Chicago. It does not detract from Dr. Baker's credit, however, that he did not publish quite as early his experiments with this great power. To both men great honor is due. There seems to have been an era of awakening in both men's minds of the possibilities in the use of the power derived from the stretched elastic band.

Much more important to us, however, than the question of to whom honor is due, is the fact that this most indispensable adjunct to our appliances was given to us at all. As the possibilities in employing it in combination with other forces, and as an auxiliary force, began to dawn upon the minds of men practicing orthodontia, then it was that the extractionists received their death blow. It seems unfortunate that some of the followers of Dr. Case have not more fully developed and



## ITEMS OF INTEREST

worked out in a practicable way the possibilities of his discovery, and abandoned the method of extraction, which savors too much of a by-gone age, where heroic methods were commonly practiced. To my mind, extraction should be confined to the same category as blood-letting and other practices of the old school. This statement applies to the great majority of the cases we are called upon to treat. There are cases doubtless where it may be absolutely necessary to extract, but they are exceedingly rare. At least, I have not yet come in contact with such cases personally.

### **Inter-maxillary Force Defined.**

Inter-maxillary force is a force working between maxilla and mandible. In the treatment of all those cases where harmony in the relationship of facial lines, jaws and teeth, is only possible by shifting the occlusion—the force now universally adopted is the pulling force of the rubber ligature. There are other forces which might well come under the heading of this paper, such as the bite-plate, inclined plane, etc. I will speak of these briefly later. But the force by far the most important, because of its reciprocating energy, the innumerable combinations possible in applying it, and because of the constancy with which it works—is the force derived from the simple elastic band.

Its simplest use may be best illustrated by employing it in the elongation, or in the forced eruption of a tooth in the upper jaw, the other end of the elastic being held by appliances upon teeth of the lower arch. You are all perfectly familiar with the example. This use of inter-maxillary force was first given to us by Dr. E. H. Angle, in 1891. In its employment there is no tendency nor intention of affecting the mesio-distal relationship of the inclined planes of the opposing arches.

In Class I cases, the rubber ligature is a valuable auxiliary to the expansion arch.

[A picture was shown in which space is being made for the upper left first bicuspid, by forcing the cuspid and incisors labially by ligating them to the arch in front of spurs upon the expansion arch. This distal displacement of the upper molar in overcoming the resistance of the moving teeth is prevented by the elastic force, shown by the dotted lines working in the opposite direction.]

### **Figure 1.**

This picture also illustrates beautifully the reciprocating action of the elastic. This case is identical with the first diagrammatic sketch, except that in this instance it is the lower molars that are prevented from displacement by the pull of the elastics. Spaces for the full eruption of the lower second bicuspid are not enough. This condition, associated with an



abnormal fraenum labium, gives to the models, and more perhaps to the face, the appearance found in Class II, Division I cases. In the mesial movement of the lower teeth anterior to the second bicusps, all the resistance falls upon the molars. To conserve this primary anchorage, the elastic force is invaluable. The pressure upon the molars through the nuts on the arch is overcome largely by the pull of the rubber ligatures around the distal ends of the tubes. By careful manipulation of nuts, and a knowledge of the strength of pull of the elastics, it will be apparent that the stress upon the molars can be kept at zero.

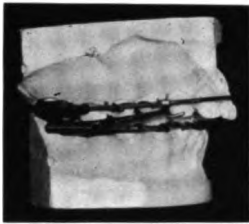


FIG. 1.

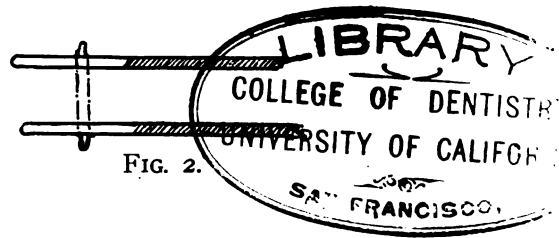


FIG. 2.

At the other end of the inter-maxillary force the pull is effecting pressure upon the prominent central incisors. The pressure at this point is regulated by the nuts in front of the tubes on the upper clamp-bands.

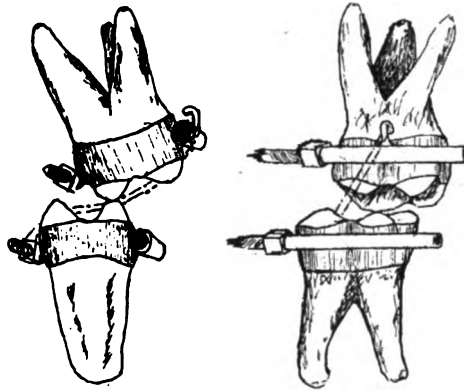
In cases where there is a lack of anterior occlusion there are several methods of overcoming the difficulty. One is by banding individual teeth, upper and lower, and stretching elastics between them over spurs on the bands. Another method I have found most serviceable is one illustrated in Fig. 2. It is a means of overcoming the difficulties of such cases which Dr. H. A. Baker has used with unqualified success. The springs of the arches are used in conjunction with elastics stretched from maxilla to mandible over spurs soft-soldered to the arches, upper and lower, at the desired joints. The arches are bent to the required shape, and with the proper amount of spring, then held up to place and ligated firmly to the teeth requiring elongation. The elastic pressure is applied as an auxiliary to the spring of the arches. Dr. Baker uses heavy pieces of separating elastic cut in squares and with holes punched in them; these he has his patients snap over the spurs, from arch to arch, at night.



## ITEMS OF INTEREST

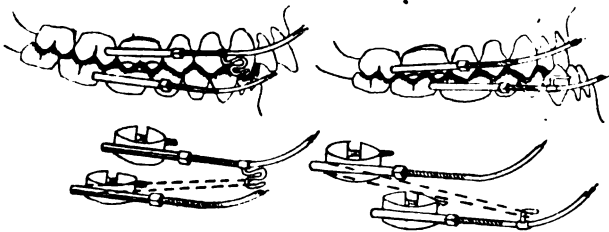
**Figure 3.**

Occasionally I have had cases referred to me that have been carried on—up to a certain point—by some one else. I have found in several instances molar teeth carried by an excessive spring in the arch, far out into buccal occlusion, sometimes beyond the danger line, *e. g.*, the lingual cusps of upper molars, buccal to the buccal cusps of the lower



**FIG. 3.**

corresponding teeth. This drawing will serve to illustrate the point. If it is the upper molar that is in buccal occlusion (as here represented), I solder to the upper edge of the tube on the upper clamp-band a little



**FIG. 4.**

spur. An elastic ligature attached to this spur, and passing between the occlusal surfaces of the upper and lower molars, is hooked over the extension in front of the nut on the lower clamp-band. This simple way of applying inter-maxillary force I have found most serviceable. It perhaps is never necessary for any one of the gentlemen present to re-

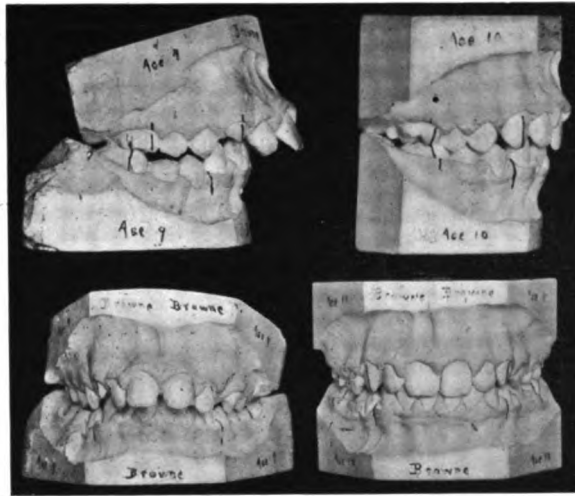


# ORTHODONTIA

sort to such treatment in quickly aligning buccally displaced molars, upper or lower. But unfortunately I have had to cope with this difficulty on several occasions in treating cases coming to me from inexperienced hands.

**Figure 4.** This is a diagrammatic sketch showing the application of inter-maxillary force for cases of distal occlusion and mesial occlusion.

**Figure 5.** The picture in this figure shows the side views of a case of Class II, Division I. This is an extreme case of its class, with lower incisors imping-



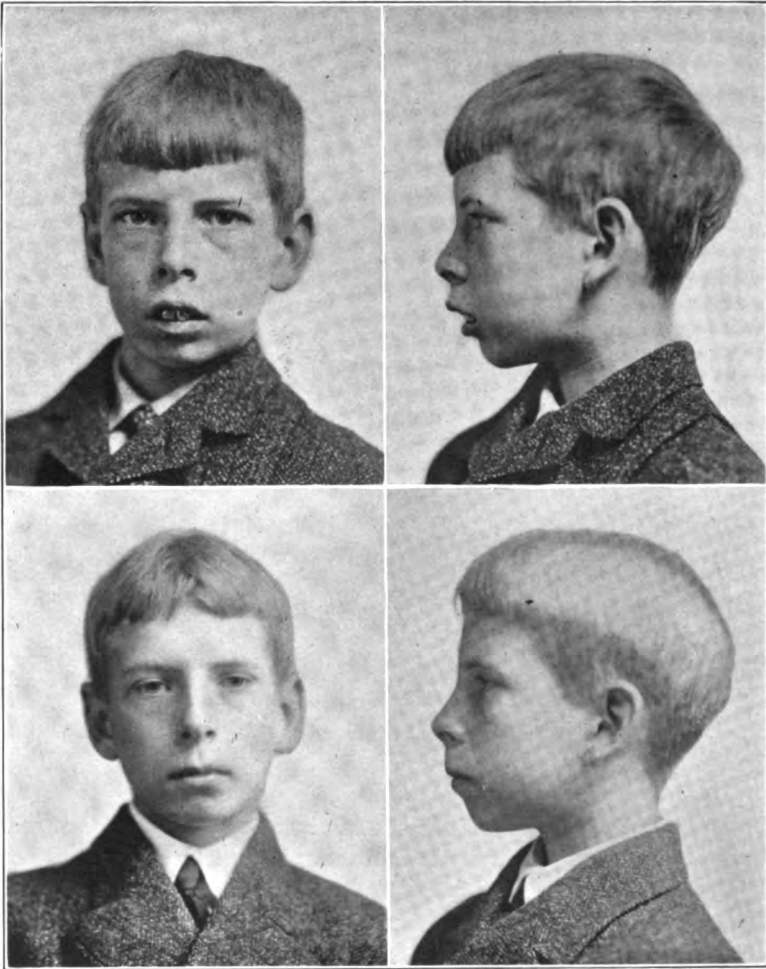
FIGS. 5 AND 6.

ing upon gum-tissue back of the central incisors. When the boy came to me he was wearing caps upon the lower molars to relieve this condition. These caps were in place when the impressions were taken for the models before you. Both arches were expanded laterally, and when the inter-maxillary elastics were applied, force was at first exerted only upon the upper central incisors. The amount of pressure at this point was governed by the releasing or tightening of the nuts in front of the tubes on the upper clamp-bands. The lower incisors were carried labially by the usual method, the elastic attached around the distal ends of the tubes on the lower clamp-bands acting as auxiliary anchorage to these teeth. When the lower arch was expanded sufficiently, all the



## ITEMS OF INTEREST

teeth were ligated firmly to the expansion arch, and pitted *en phalanx* against the upper incisors. In this case I desired as little distal displacement of upper molars as possible, so the nuts on the upper arch were released somewhat during treatment.



FIGS. 7 AND 8.

**Figure 6.** Front before and after. If there was any depression of the upper incisors, or of the lower incisors in their sockets (and I believe there was), it was accomplished by the spring of the arches caught in notched bands



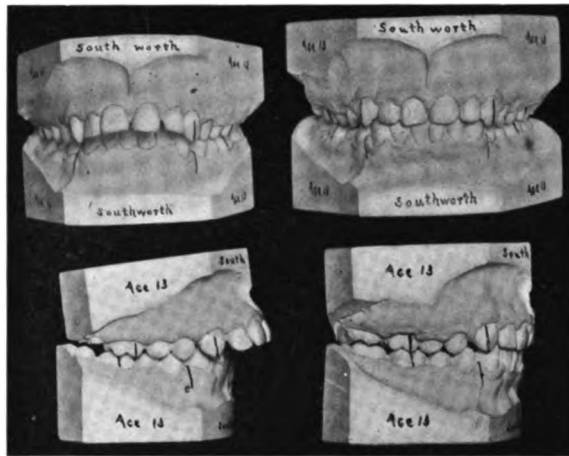
# ORTHODONTIA

upon these teeth. At the present time, a year since the final models were made, the bicuspid and cuspids have fully erupted, so that the interlocking of cusps is even better than here shown.

**Figure 7.** Face before. Front and side.

**Figure 8.** Face after. Front and side.

**Figure 9.** Front models, before and after. This case is also of Class II, Division I. It is of particular interest to me because it is the first case of an extensive malocclusion that I have treated by only weekly appointment.



FIGS. 9 AND 10.

**Figure 10.** Side models, before and after.

**Figure 11.** Face before treatment. Front and side.

**Figure 12.** Face after treatment. Front and side.

The next three plates were loaned me by Dr. Casto, of Cleveland.

This picture shows the kind of cases in which Dr. Casto employs a bite-plate with individual bands and elastics for final steps in treatment. The picture before you now is of Class II, Division I. Incisors impinging upon soft tissues behind upper incisors. Molars and bicuspid are short, and the upper and lower incisors are too long. Dr. Casto first expands the arch as usual in the treatment of these cases, and retracts by inter-maxillary force and the spring of the arch the prominent upper incisors. The case is then ready for the bite-plate and individual bands.



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**Figure 14.** This picture shows a bite-plate—a modification of Dr. Kingsley's bite-plate—designed by Dr. E. H. Angle. Dr. Casto applies such a plate to the upper arch. This plate holds the expansion of the upper arch. Wires are



FIGS. 11 AND 12.

fitted over edges of the upper incisors and vulcanized in the plate. This prevents them from moving labially, depresses them in their sockets, and also prevents the plate from striking too hard upon the soft tissues.

In the lower portion of the figure is seen the way in which Dr.



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Casto applies inter-maxillary force between individual teeth from maxilla to mandible, where it is desired to get a better interdigitation of cusps, and a shifting of occlusion, as in this case. The desired teeth are

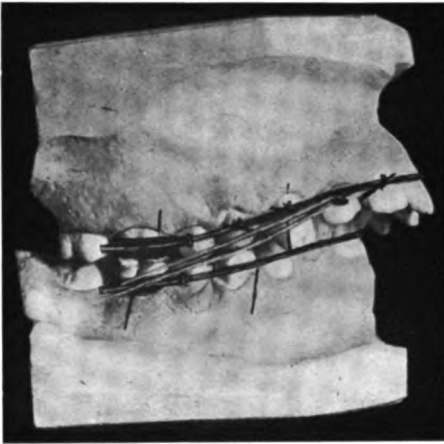


FIG. 13.

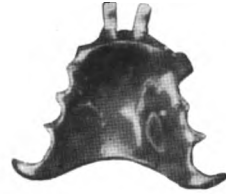


FIG. 14.

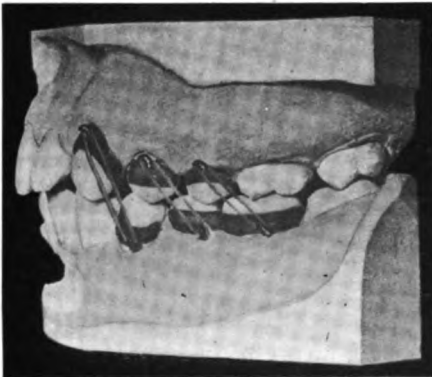


FIG. 15.

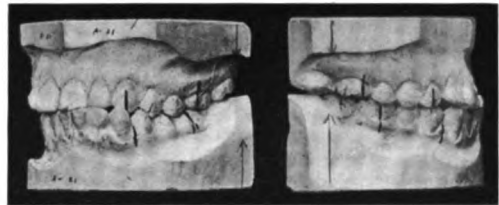


FIG. 16.

banded, with spurs soldered to their buccal surfaces to engage elastics. This elastic pull tends to straighten the roots to a greater or less degree, thus correcting the buccal slant of the cusps.

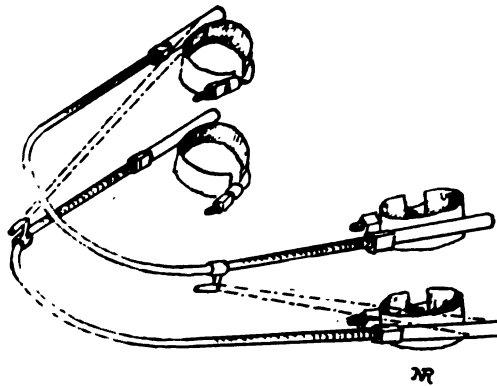


## ITEMS OF INTEREST

**Figure 18.**

This slide shows the case as it is nearing completion. The desired settling of the occlusion is about finished. The bite-plate has depressed the incisors, upper and lower.

The lower arch is kept forward partly by the strike upon the inclined plane of the bite-plate, and partly by the pull of the inter-maxillary elastics. The lower incisors are depressed while bicuspid and molars are being elongated by the elastics.



**FIG. 17.**

The next three plates were loaned to me by Dr. George C. Ainsworth, of Boston. They show very clearly his method of applying the inclined plane in just such cases as Dr. Casto uses his bite-plate. The idea, of course, is the same, but the manner of attachment differs. The plane is soldered to the lingual surface bands upon the upper central incisors. Wires are bent over the incisal edges of the laterals; this is again re-enforced by wires passing distally to the molar bands. The expansion is also held by the wires. In the pictures shown the molar bands are the same bands used in the expansion of the arch before the plane was adjusted, the tubes are unnecessary.

Dr. Ainsworth first expands upper and lower arches to the extent desired, and then applies the inclined plane to depress the upper and lower incisors, and allow molars and bicuspid to settle to occlusion. The inclined plane may be so adjusted as to correct cases of this kind where there is unilateral distal occlusion. I have one case where I have accomplished this movement.

If you could see some of the beautiful results which Dr. Ainsworth has accomplished with this little inclined plane you would be delighted.



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It is a most valuable adjunct in combination with our retainers in cases of Class II, Division I.

In the fall of 1904 Dr. R. B. Stanley, of New York City, referred to me the case of a young lady who was to spend the winter in Boston. He had expanded the arches considerably. She came to me with the upper appliance adjusted, and with a stay-plate in the lower arch. I continued the expansion upon upper and lower arches for some little

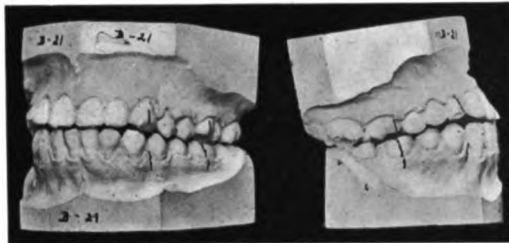


FIG. 18.



FIG. 19.

FIG. 20.

time before applying the inter-maxillary force. This force was used in this particular case in rather a peculiar manner.

**Figure 16.**

You will see in this picture that the lower jaw was in mesial occlusion upon the right side, and in normal occlusion upon the left. A front view of



## ITEMS OF INTEREST

the face shows the mandible swung to the left to a marked degree. I applied elastic force in the usual manner to correct the mesial occlusion upon the right, *e. g.*, from upper right clamp-band to a sheath-hook, as far forward as possible on the lower arch. The desired movement was accomplished in a comparatively short space of time. The median line of lower arch was still considerably displaced to the left. To overcome this difficulty I applied elastics on the left side as we apply them for distal occlusion cases.

(Appliance showing pull of elastics.) This drawing is intended to show the manner in which I applied the elastic ligatures. The result of this use of the rubber pull was to swing the mandible to the right somewhat and bring the teeth into normal relation.

**Figure 17.**



FIG. 21.

(Models after.) The face was improved considerably, though the upper and lower incisors at completion were inclined somewhat in the direction of the pull on each arch. The impressions for these models were taken on the same day the working appliances were removed, and the retainers adjusted. I would have liked impressions some months later, but the patient was going to the Middle West and it was my last opportunity. You will see that all the inclined planes tend to the normal. The application of the force is interesting, in that I believe there are no records where it has been so employed before.

**Figure 19.** Face before.

**Figure 20.** Face after.

**Figure 21.** Side models, before and at present.

This case is another of Class III, complicated by considerable loss from extraction. The upper first molars were both extracted. The right second molar has come down, but the left second molar has not appeared.



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though on the point of erupting. The lower first molars were also missing. The problem here was to get a sufficiently stable anchorage to bring about the desired changes.

(Drawing of appliance.) This drawing shows the means adopted to get an equal pull of elastic force on each side. The upper left bicuspid were banded, the bands soldered together, and a section of heavy wire soldered on the distal surface of the second bicuspid with a hook at the

**Figure 22.**

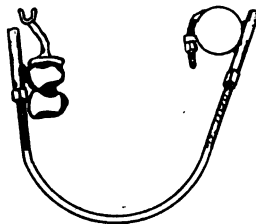


FIG. 22.

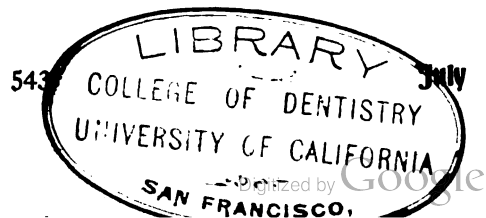
end to hold the elastics. This hook was carried distally just far enough to make the pull on either side equal.

The study model shows the present condition of the case. This model was made from a wax impression taken a few days ago. The anchorage on the left, though it has been displaced somewhat, still has served its purpose very well. I have considerable yet to do on this case. I am sorry that I can not show you the completed models at this time.

In the treatment the upper six anterior teeth were moved labially first, expanded and separated. Then afterward, drawn from either side toward the median line, the elastic force afterward carrying the bicuspid mesially.

Here is still another mutilated case of Class III, that was made very difficult by reason of unstable anchorage. The upper first molars had been extracted. The lower right first molar and bicuspid also were missing. For various reasons it was a case in which I attempted simply to improve the occlusion, for in the original condition he had little or none. Where the teeth were missing in the lower arch I connected the cuspid and the second molar by a heavy bar soldered to bands. The upper arch was expanded and inter-maxillary force applied in the approved manner. The extreme lingual inclinations of the lower incisors I was unable to relieve.

**Figure 23.**

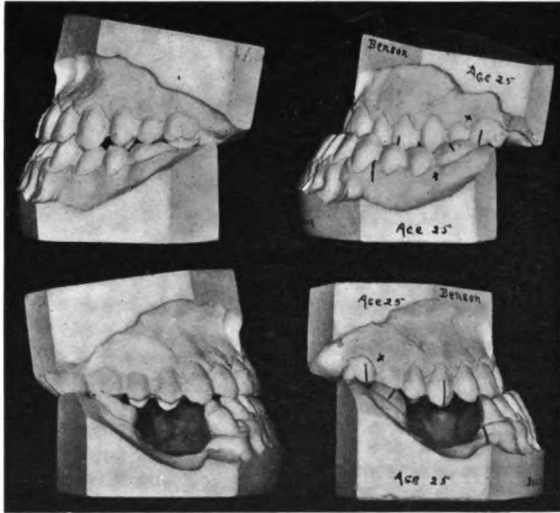




## ITEMS OF INTEREST

(Opposite side.) The use of inter-maxillary force usually causes more or less tipping of the primary anchor teeth. This tipping we must combat as best we may. In long drawn-out cases this tipping may become severe, though generally it does not reach serious proportions. It, however, causes us to occasionally shift the inclination of the tubes upon our clamp-bands. It is often necessary to spend considerable time in this operation. Dr. Pullen showed in Boston, early this month, his improved manner of attaching the tube to the band, whereby by simply removing the ligatures from the teeth, but not the arch, then grasping the tube with pliers, it could be bent to the desired angle without in any

**Figure 24.**



FIGS. 23 AND 24.

way affecting the tube or its attachments. If this mode of attaching the tube to band does not carry the tube too far buccally (and it does not seem to do so), and it will do all it says it will, it is a grand thing.

### **Comparative Tension of Elastic.**

The degree of force applied, in the strength of pull of the elastic ligatures, seems to vary considerably in different men's hands. For myself, I have been using what I considered three different pulls—light, medium and heavy. But in experimenting to find just the strength of the pull for a certain distance of the elastic bands I was using I found to my surprise that the medium pull was heavier than I had considered my heavy pull. I had been using Bailey's "Violet" elastics for my light



pull, Goodyear's "Election Bands" for my medium pull, and Angle's Rubber Ligatures for my heavy pull. The average length of pull in my cases of Class II, Division I, is almost 1 5-6 inches. The light elastic registered a pull of 5 ounces each for this distance, and 10 ounces for two elastics. The medium pull for same distance varied from 8½ ounces to 10 ounces for each elastic, and from 17 to 21 ounces for two elastics. Angle's ligatures vary from 8 to 9½ ounces for one elastic, and 16 to 20 ounces for two elastics. There is considerable variability in the strength of pull of the elastics cut from the same tubing. The figures I have given I found only after trying many elastics.

As yet I have never needed to use more than two heavy elastics in my work. I use light elastic pressure generally. If I see the desired movement taking place I do not care to hurry it along. In the cases I have shown you, the length of time to accomplish movement from complete distal to normal occlusion varies from three to six months. I start cases with a light pull, gradually increase it to what I deem the maximum pull for the particular case, keep such pressure constant until normal occlusion is reached, when I gradually reduce the pressure until I have the lightest pull that will hold the teeth in normal occlusion. I prefer to let as much settling occur as possible with working appliances in place, holding the teeth in occlusion by light rubber elastics rather than to trust to retainers at once.

In the preparation of this paper and the plates shown I have endeavored to bring out the point that where all the teeth are present, though the malocclusion may be severe, yet it is perfectly possible and feasible to bring them into normal occlusion. The cases where it was necessary to deal with mutilated conditions, and where, when the mutilation is severe, we can only hope for an improved occlusion, I have brought forward to show our limitations. The more we imitate the silent forces of nature, which are ever at work, quietly yet none the less effectively, the more humane and successful the results will be. This is but the trend of modern thought and practice. The disruptive forces of nature are rarely brought into play. So this disruptive force in orthodontia—which I may call extraction—destroying tissue, and causing shock, is rarely necessary. There is a better and a safer way. If you will permit me I will draw an analogy from Elijah of Holy Writ. He was a man of heroic type, who believed in fire, and famine, and the sword of destruction. But Elijah had to be taught that God and truth and right were not in the mighty wind, nor in the earthquake, nor in the fire—but in the Still Small Voice. So must the Elijahs of orthodontia be taught that truth and right and humanity and God are not in the disruptive and cruder methods of extraction, but in the Still Small Voice of the gentler, better way.





## **Imperialism---Coercion and Biased Censure in the Field of Dental Journalism---a Plea for its Emancipation.**

By WILLIAM CUMMINGS FISHER, D.D.S., New York City.

*Read before the Central Dental Association of Northern New Jersey.*

The usefulness and value of books and journals, conceived in a spirit of broad conservatism, carefully written and carefully edited is without limit.

One has but to look over the editions of the several dental journals to be forcibly impressed with the deplorable condition, and the crying needs of journalism within our profession to-day. The condition referred to is the ownership and control of practically all of our dental journals by either some dental manufacturing company or a local supply house and the subservience of these journals to the interests of the dental houses publishing the same.

These impressions were all the more intensified by the appearance last April of a western dental journal without an editor, the editor of that journal having been asked to resign by a dental supply house proprietor—the publisher of the journal—because the editor refused to publish an article which he did not consider conformed to the practice of conservative and ethical methods as set forth by the authors of our recognized text books to-day. Whether the editor of this journal was right concerning this particular article or not I do not propose to opine, nevertheless, from a professional and journalistic standpoint, he most decidedly was correct, and this publisher has continued to place his journal before our profession without a responsible editor.



"As good almost kill a man as kill a good book," says Milton in his *Areopagitica*, that grand appeal before the Lords and Commons of England for the freedom of the press. "Who kills a man kills a reasonable creature, God's image; but he who destroys a good book kills reason itself, kills the image of God." . . . "Many a man lives a burden to the earth, but a good book is the precious life blood of a master spirit, embalmed and treasured up on purpose of a life beyond life. It is true no age can restore life, whereof perhaps there is no great loss; and revolutions of ages do not oft recover the loss of a rejected truth, for want of which whole nations fare the worst. We should be wary therefore what persecution we raise against the living labors of public men, how we spill that seasoned life of man, preserved and stored up in books; since we see a kind of homicide may be thus committed, sometimes a martyrdom, and if it extend to the whole impression a kind of massacre, whereof the execution ends not in the slaying of an elemental life, but strikes at that ethereal and fifth essence, the breath of reason itself, slays an immortality rather than a life."

**Influence of  
Trade on  
Journalism.**

The first and principal object of these so-called publishers must necessarily be a commercial one—that is self-evident and needs not to be proved. Our profession furnishes the easy and profitable field for their operations. Easy—because as Dr. William H. Potter has said—the profession finds such paternalism pleasant and satisfactory.

The hand of the dental manufacturers, or "The Trust," as it has been frequently called, is seen not only controlling our journals, but through the influence of these journals, exercising a partial—if not complete control of the internal business of our dental societies, national, state and local.

When it pleases the owners of the journal, the proceedings of the more important societies are published.

Certainly these conditions alone are sufficient arguments in favor of a journal that shall be absolutely free from any such disgraceful coercion—but there are many other reasons.

Does it seem unreasonable to expect that in these United States, with the vast number of ethical dentists therein, we can publish one dental journal of a national scope that shall be a journal of our profession, for our profession, and *by* our profession?

Do you realize that the journals sent out each month by the supply houses really constitute the literature of our profession to-day? Think what this means—the literature of our profession—controlled by those who are absolutely without our ranks. It means that my profession has



## ITEMS OF INTEREST

no dignity, no stability, no standing with itself. You cry for recognition and standing with the allied professions and we have it not with ourselves.

### **The One Man Journal Condemned.**

The *Journal of the American Medical Association* to-day reaches each week more than 47,000 subscribers, and has become the leading medical magazine in the world. If the American Medical Association can publish a creditable journal with fifty-two numbers per year, surely our National Association could publish a journal of twenty-four, or even only twelve numbers, filled with papers of high professional and journalistic value.

Give this journal an editorial staff with an editor-in-chief, instead of placing it in the hands of any one journalist, for I would have you keep as carefully away from the *one man journal* as you should from an undesirable publisher. What is the inevitable result of a *one man journal*? If it obtain any degree of conspicuousness, if it reach a large circulation, if it meet the eye of many members of the profession, then that one man is talking to us—one man to all of us. Unless he be remarkably strong in professional ethics and integrity he will become a politician, and a politician with a powerful agent—his journal. A certain amount of politics is perhaps essential in our National Association, as it is in any large organization; but we do not want our journals to create politicians, nor do we want our politicians to divert our journals from an ethical to a political and personally political organ. That is one reason I warn you from the one man journal. The journal with an editorial staff will be superior to the one man staff in that it furnishes the judgments and opinions of several as against one, and oftentimes those opinions may be expert in the several departments, when one man, be he ever so large mentally and practically, can not be expert in all departments of the profession.

### **Trade Journals Closed to Dr. D. D. Smith.**

Dr. D. D. Smith, of Philadelphia, in a paper read before the Minnesota State Society last June, said that he had found the columns of the dental journals closed to his articles on "oral prophylaxis." Some editors refused his articles, alleging personality as an excuse.

Now Dr. Smith may be an extremist or he may not be, but if he or any reputable member of this profession has something that he considers worth the attention of his fellow practitioners, he should have some means of placing it before us. Dr. Smith shows you how to-day this is impossible with the one man journal—"Trust journals," as he styles them. He does not hesitate to mention names and dates, narrating



his fruitless efforts to reach the profession through the columns of *Cosmos*, the *Digest* and the *ITEMS OF INTEREST*. If the facts are correct as set forth in Dr. Smith's paper (and if they are not it would be well for these editors to deny them), then is our journalism subject to a most deplorable imperialistic and coercive influence.

As another illustration of this influence, let me narrate this recent incident in one of our dental societies. The Chairman of the Executive Committee was the editor of a journal. This journal had been sharing the expense of the stenographer who reported the society's proceedings. The Executive Committee thought that the journal should bear the entire expense of the stenographic report, so the Chairman in his report to the society said, and this in a pleasant, patronizing manner, that the Chairman of the Executive Committee had persuaded the editor of the journal (that is, he had persuaded himself) to bear the entire expense of the society's reports.

Think of it, gentlemen, that society sold out to that journal for a few paltry dollars. The cost to that society to report its own proceedings would not have been one dollar per member. For one dollar those men sold themselves to one of their number, thereby placing themselves under obligations to that editor, his journal, and indirectly to the supply house which owns both journal and editor. This is a condition that is dangerous. It is unprofessional—unmanly. It is similar to the conditions found in our corrupt political, financial and social institutions, the correction and punishment of which is occupying the great American public to-day. Let us extend this "housecleaning" into our professional ranks and our journalism. Don't for one moment think that I believe conditions are so very rotten that they are hopeless. But they are bad enough to need your attention and correction before our organizations suffer a violent eruption of reform.

We have some excellent material in the profession, and we could obtain, if these men would serve, a staff of great ability. If the National Dental Association would undertake the publishing of this journal, I am confident after its initial year it would be more than self-supporting from its two sources of revenue, the subscriber and the advertiser.

The editorial staff might possibly be obliged to serve the first year without salary. After that I believe they would not suffer for just compensation for their services to their profession. There should be an editor for each of the several important departments that would comprise such a journal. These, with an editor-in-chief and a business manager, would



## ITEMS OF INTEREST

constitute the editorial staff, which I would place under the jurisdiction of the National Association, electing each member separately and for a term of office.

Further, I would seek for the best writers by purchasing original papers, thus persuading the busy men in our profession that they could profitably spare from their daily practice time for their compositions.

It takes time, and often the expenditure of no little amount of money to procure material, make experiments and institute investigations for a paper of importance. You and I profit by the results of these labors, and we should, and it is our desire to, compensate these men for their work, the good results of which we share with them. But we have been at a loss for a proper method of doing so. Here it is. You and I, by our support to just such a national journal, open a way.

What will be the result? The writer and investigator in our ranks will be stimulated to great activity. You and I will take greater interest because we are sure of the best that can be procured; and between the instructor and the student in our profession, will be a live national organ.

I would have this journal publish a review of the proceedings of the state and local societies as supplied by them, thus making it of local as well as national interest to every section of the country. Review books and papers from contemporary journals, report on new instruments and appliances, and report from time to time the progress of the several committees of the National Association, thus keeping in constant touch with any important matters in the National organization, instead of waiting twelve months for a hasty report.

In the editorials of the journals now published, do the editors report upon new instruments, preparations and methods employing these new instruments? Most of them have a department for the review of books and magazines, but nothing is said of the products of the manufacturer. Of these you must know only what the manufacturing publisher wishes you to know; and here he uses his journal for his purpose. No adverse views of the profession are sought, and I am sure would never be published were they offered. The position of the manufacturer in our midst—for he most decidedly has stolen into the fold of our profession—has become more unpleasantly secure than we realize. This is well illustrated by the following incident which occurred to the writer last month. In the presence of another member of our profession, one of the manufacturers said to me that the dentists themselves could not hold a convention or publish a journal; that they were always compelled to fall back upon the manufacturers and supply house proprietors. He referred in a most disgusting, deprecatory manner to *The Journal of*



*the New York Institute of Stomatology and American Academy of Dental Science*, saying that when they sent him the prospectus of their advertising pages he turned them down coldly because, being a strictly professional publication, it would never have a good circulation. We are compelled to acknowledge, gentlemen, that what this manufacturer said regarding our journals and conventions has been all too true, and to make matters worse, they know this. That knowledge has been their strength and our weakness. I appeal to you to reverse this order of things. You can do it, and great will be the benefits to the dental profession.

The medical profession are to-day in the midst of a great struggle, seeking emancipation for themselves and their literature from the venter of nostrums and the proprietary medicine manufacturer, and their noble efforts are sure to be crowned with success. Before we become weaker in our refusal to exercise a personal and professional responsibility in editing our own journals, let us throw off this yoke of imperialism and censorship established (I may say without any set desire toward coercion) by the dental manufactories and supply houses. Let us emancipate our literature from this unprofessional and unscientific production.

Have you ever carefully examined the so-called journals of the dental profession to-day? If so, then how many of this great number can you unbiased and sincerely say are worthy of your perusal? How many of them can you read with pride and with profit? There may be one or two, but you will find them as I have stated, the property and advertising media of supply houses. Already have a few made the first step in the right direction by placing before us a journal which is the official organ of some prominent dental societies of the East, and their first numbers justly command our commendation. But this, gentlemen, is not enough. This journal should be national in its scope—the official organ of our National Association.

While abroad recently I took occasion to discuss this matter with several of our prominent dentists in Europe, and received from all an endorsing opinion. They would welcome just such a representative American paper. And, as our ethical dental schools become the model for Europe, so would our journal stand in their field of dental journalism. You are all perhaps acquainted with the *British Dental Journal*, in which we have an example of a truly professional paper. Notice, I did not say ideal nor faultless, but truly professional. Another example of a truly professional journal is the *L'otontologie* of France, in which country I am told there are no less than three dental journals published by the profession; while Italy and Germany each publish two. Let us have at least *one* in America.

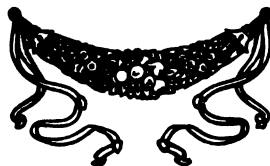


## ITEMS OF INTEREST

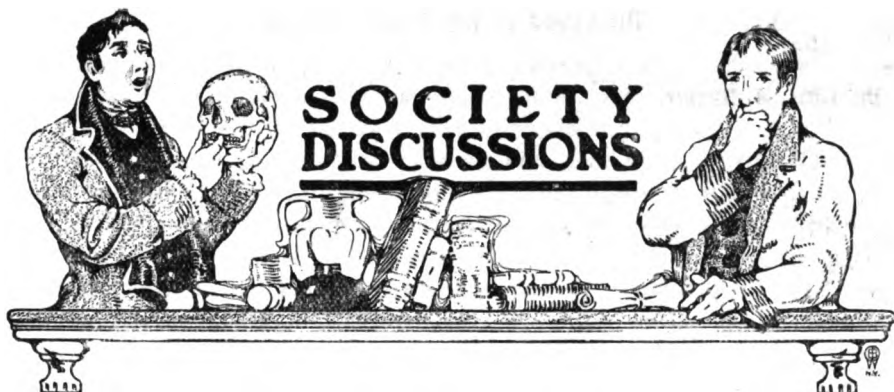
The vital needs of the dental profession to-day are a harmonious organization and a representative national journal; that will encourage right thinking, help secure from time to time needed reforms and promote and encourage the highest interests of both the laity and the profession. And such a journal as I have roughly outlined and advocate will produce and preserve such a degree of harmony in our National Association as has not been enjoyed for several years.

This is not a chimerical dream, gentlemen, but the briefest outline of a sound and practical plan, one that has been tried and found favorable in almost every profession. Look at the one to which we are closely allied. Why, even its various specialties publish their own individual journals. The lawyer has his and the chemist has his. Does the engineer allow some *get-rich-quick mining company* to publish his journals? The biologist and astronomer reads of things earthly and things heavenly, not as dictated by some lens publisher, but as set forth by a brother scientist. But here is a profession, American through and through, that is lacking the great essential agent, journalistic representation before the world. Then let us have a wholesome dental magazine by literary, scientific, practical and ethical dentists.

These ideas, their deductions and conclusions, have been strengthened but not formed by the opinions of others, and any adverse criticism they may call forth will be borne by the writer—this in testimony of his sincerity, "For he who freely magnifies what hath been nobly done, and fears not to declare as freely what might be done better, gives ye the best covenant of his fidelity; and that his loyalest affection and his hope waits on your proceedings."







### **Central Dental Association of Northern New Jersey.**

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A regular monthly meeting of the Central-Dental Society of Northern New Jersey was held at Achtel-Stetters, Newark, New Jersey, Monday evening, March 18, 1907.

In the unavoidable absence of President Marshall Vice-President Hane took the chair.

The Chairman called the meeting to order.

The Secretary called the roll and a quorum was found to be present.

The minutes of the last meeting were read and on motion approved as read.

The following applications for membership were received, and on motion took the usual course:

Edward L. Wharton, B.D.S., Newark, N. J.; sponsors, Drs. Truex and Baker.

Ralph W. Waldron, D.D.S., Newark, N. J.; sponsors, Drs. Sutphen and Meeker.

The following resignations were received and on motion accepted: Dr. William T. Cook, Dr. Eugene S. Taft and Dr. Edward H. Webb.

The resignation of Dr. David C. Baker as chairman of the Dinner Committee was presented, and on motion accepted with regrets.

On motion of Dr. Meeker, regularly seconded and adopted, Dr. W. L. Fish was selected to take the place of Dr. Baker on the Dinner Committee.

The Chairman then introduced William Cummings Fisher, D.D.S., who read a paper published in this issue.



## ITEMS OF INTEREST

### Discussion of Dr. Fisher's Paper.

I did not expect to open this discussion, and I am  
**Dr. Chas. A. Meeker.** only doing so in order to make way for the intellectual giants who come later.

This paper is another demonstration of the fact that the C. D. A. is the most unique society in the country, because it is perhaps the most independent dental society. From the inception of our meetings we have allowed everything on dentistry—and in some cases papers that were not on dentistry—to be read, and every gentleman who has read a paper has received respectful consideration and there has been thorough discussion of his essay. Indeed, we once had a crazy man read a paper before us, and the poor fellow died the very next week.

Dr. Fisher suggested in his paper a national dental journal with a large editorial staff; it might be a very good idea provided every editor could be a law unto himself, and if there was no chief editor to prevent his associate editors from inserting any articles they thought proper. And if that were not done it would, after all, be only what the essayist calls "a one man journal."

When we leave the dental college we are grounded theoretically in our profession, but have not experience, and we gain our clinical knowledge in our business as we go on through life day by day. That is how we gain experience, and when it is extensive enough we can almost at a glance diagnose a case and tell what the difficulty is.

So it is with the editor of a dental journal of experience; from his knowledge gained by constant work in that direction he is able to tell almost at a glance the value of any article contributed to his journal.

So far as editors being dictated to by the owners of the dental publications in their charge, I wish to say most earnestly that there is one editor whom I have known intimately for many years, and I am sure he could in no way be dictated to as suggested by the essayist. Two other gentlemen and myself have been in the habit for more than ten years past of meeting this editor almost every Friday, and at those meetings journalism has often been discussed. Thus I know positively that Dr. Ottolengui, the editor of *ITEMS OF INTEREST*, has never been dictated to by the owners of the journal as to what he should publish therein.

I am very glad indeed, after waiting for ten  
**Dr. Ottolengui.** years, at last to have an opportunity, in a society where I have numerous friends, to personally answer this oft repeated slander, for it is nothing short of slander to state that the men who are editors of trade journals in this country have



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sold themselves for their salaries to the houses owning the magazines which they edit, and no man should make an insinuation of that kind without positive evidence to support his assertion.

I have edited a great many essays, but I have never read one of this brevity which contained so many inaccuracies as the one which I am now to discuss, and I will discuss it seriatim.

The condition referred to as the ownership of practically all of our dental journals by either some dental manufacturing company or a local supply house, and the subservience of these journals to the interest of the dental house publishing the same, is the first subject to which I will refer.

The journal can not be subservient to the publisher unless the editor is a paid and obedient servant of that publisher. That means that Edward Kirk, C. N. Johnson, J. D. Patterson, Wilbur F. Litch, Barrett, Taft, Bethel, Line, Hoff and myself have been willing to sell our professional dignity, our honesty and integrity to trade houses; and it is not true, and the author can prove it. I quote from the paper:

"These impressions were all the more intensified by the appearance last April of a western dental journal without an editor, the editor of that journal having been asked to resign by a dental supply house proprietor."

Dr. Patterson was not asked to resign. I have a letter in my possession stating the full facts in that case; he was not asked to resign; on the contrary, he was begged not to resign.

This is only a specimen of the lack of knowledge of facts which to-night's essayist presumes to criticise; and it is a curious thing that in the whole realm of criticism, critics are usually people who are not able to do the things which they set themselves up to criticise. The critic of painting could not paint a cow so that you would know whether it were a cow or a pump-handle; the critic of acting is a man who could not play any part in life save that of a critic of acting, and the critics of journalism know just as little about journalism as the other critics do of the subjects which they undertake to criticise.

Later on somewhere in the paper Dr. Fisher argues against a "one man journal," and speaks in favor of a journal that shall not have a supreme editor. Nevertheless, he criticises the western publisher now because he "has continued to place this journal before our profession without a responsible editor."

This (exhibiting pamphlet) is the western journal of which he speaks. In it we find a department of prosthetic dentistry conducted by Dr. F. C. Whortley, and a department of orthodontia conducted by W.



## ITEMS OF INTEREST

J. Brady. Dr. Root is also one of the editors, as is Dr. Hetrick, and the editorial in chief each month is signed by the man who writes it. This journal, at the present time, is not a "one man journal," but is one with a staff, which the essayist recommends on one page and condemns on another. He condemns this journal because it has no specified editor. But he lauds the journal of the New York Institute of Stomatology and allied societies, which has no editor at all, but is simply conducted by a publication committee. Their names appear in the magazine, but it has no accredited editor, which is the very thing for which the essayist condemns this western journal. I mention this to show the consistency (?) of the essayist.

There is one good thing in this paper, and that is a quotation from a man named Milton! (Laughter.) And in that we find one line which evidently escaped the attention of the essayist, as follows: "We should be wary, therefore, what persecution we raise against the living labors of public men." The editors of the journals attacked to-night are public men. Is it certain that they are not laboring for the profession of dentistry? Is it certain that they are working for pay and the advancement of publishers who happen to be trade houses, and not for the profession of dentistry? Is it certain that these men would do any less for dentistry than the essayist, or the gentlemen whom he has mentioned as worthy to conduct a properly professional dental journal? You know the men and can answer the question for yourselves.

Then the essayist continues:

"The hand of the dental manufacturers, or 'The Trust,' as it has been frequently called, is seen not only controlling our journals, but through the influence of these journals, exercising a partial—if not complete—control of the internal business of our dental societies, National, State and Local."

"When it pleases the owners of the journal, the proceedings of the more important societies are published."

That is a broad statement to make without specifications. What societies' proceedings have been left unpublished at the dictum of a trade house? What editor has been asked, by a publisher, to refuse the publication of the proceedings of what society? I ask for specifications in reply to these inquiries.

Then he proceeds:

"Does it seem unreasonable to expect that in these United States, with the vast number of ethical dentists therein, we can publish one dental journal of a national scope, that shall be a journal of our profession, for our profession and *by* our profession?"



## SOCIETY DISCUSSIONS

### **Journalism a Commercial Enterprise.**

Does the gentleman realize that the publication of a journal is not a professional work at all? Journalism is a commercial work, and all commercial work must be conducted along commercial lines or it will fail. No dental journal, nor any other journal that I know of, can be made a success in this country without considering the present competition. With the fact that a magazine like "Munsey's," and many others, can be bought for a dollar a year, no journal can be published and be a success without advertising pages. Why? Because the public have been trained to believe they have the right to obtain their magazines at a price which is less than the unprinted white paper costs the publisher. You cannot, therefore, make a successful commercial venture of a magazine—and unless it is a successful commercial venture it will not be a successful journal—unless you accept advertisements, and, just so soon as you take advertisements you will find that your so-called professional journal will be just as subservient to its advertisers as any other journal. Indeed, much more so than a journal which is conducted by a trade house, and for this reason; the trade house which owns a dental magazine would be only too glad to exclude advertisements from its pages; it would be only too glad to have none but its own advertisements. Consequently the editor is entirely unhampered in doing anything he may please which will hurt the feelings of the other advertisers. But your professional magazine, conducted by your professional staff, would very quickly find that it must not publish anything in its professional pages which would scare away the people who were paying its printers' bills.

Here is a sentence to which I take personal exception:

"The literature of our profession—controlled by those who are absolutely without our ranks."

Is Dr. Kirk absolutely without your ranks? Is C. N. Johnson an outsider, and J. D. Patterson and Wilbur Litch, Norman Broomell, and all the gentlemen who are editors or associate editors of dental journals? Are those outside of the ranks? Those are the men who control the current literature of your profession; these are the men and no others who say what shall and what shall not be printed in trade journals. The trade houses would not dare to tell one of those men what to print and what not to print in the magazines, and I defy any man to prove to the contrary. (Applause.)

He further says:



## ITEMS OF INTEREST

"The *Journal of the American Medical Association* to-day reaches each week more than 47,000 subscribers."

(and they charge \$5.00 per annum for it, and five times 47,000 gives them capital.)

"And has become the leading magazine of the world."

The inference to be drawn is that it has become the leading medical magazine of the world because it is exclusively a professional journal. We are told that there are exclusively professional journals in Germany, France and England—are they the leading dental magazines in the world? Not by any means. Leaving *ITEMS OF INTEREST* out of the question, does not the *Dental Cosmos*, owned by a trade house, stand higher than any of these professional magazines that have been named? Does it follow then that trade connection necessarily mars a journal, or does it not follow that the integrity and honesty of purpose and intention of the editor has something to do with it?

Then he says:

**The One Man  
Journal.**

"Give this journal an editorial staff with an editor-in-chief, instead of placing it in the hands of any one journalist, for I would have you keep as carefully away from the *one man journal* as you would from an undesirable publisher."

Here we have the amateur telling you how to run a journal! There is not a successful journal of any kind on earth that has not one particular man responsible for everything that goes in it, and the trouble with the western journal spoken of by the essayist is that there they tried to deprive Dr. Patterson of the right of saying what the special editors should print; and there they failed, because they ceased to have one man in authority. You would have Bedlam in any publishing office were there more than one man in authority. There can be but one policy in one magazine, and that policy must be controlled by one man, and he must be held responsible. Let him retain his place so long as he is successful and be turned out when he is unsuccessful to give place to still one other "one man" who will replace him. Think of the New York *Herald* with every page conducted by a different man; think of any journal or newspaper in the world conducted by a staff which is not subservient to the directions of the editor-in-chief! No such proposition would come from a professional journalist I assure you.



## SOCIETY DISCUSSIONS

Then Dr. Fisher says:

"If it obtain any degree of conspicuousness, if it reach a large circulation, if it meet the eye of many members of the profession, then that one man is talking to us—one man to all of us."

No editorial is written by two men, therefore whoever writes an editorial is talking to all the subscribers—one man talking to all. The editor never talks with the voice of the men who write signed articles, and thank God he is not responsible for what they say.

Let me complete that quotation:

"If it obtain any degree of conspicuousness, if it reach a large circulation, if it meet the eye of many members of the profession, then that one man is talking to us—one man to all of us. Unless he be remarkably strong in professional ethics and integrity, he will become a politician."

Now that is interesting! That means that all of the editors of dental journals are strong in integrity and ethics—because none of them are politicians. I do not know one who is a politician.

Dr. Fisher further says:

"The journal with an editorial staff will be superior to the one man staff in that it furnishes the judgments and opinions of several as against one, and oftentimes those opinions may be expert in the several departments, when one man, be he ever so large mentally and practically, can not be expert in all departments of the profession."

That is only a plea for a staff of men on the journal where there are departments, and is in that sense perfectly proper. A magazine which has a number of departments might very well have specialists in charge, yet in each department that is "one man talking to you" in the same sense as in your present dental publications. But I believe that a magazine which has departments and a departmental staff should have an editor-in-chief, because your magazine is an educational enterprise which aims to teach, and your editor-in-chief should see to it that one department should not teach something entirely opposite from that which the other department teaches.

Now we come to the D. D. Smith proposition:

"Dr. D. D. Smith, of Philadelphia, in a paper read before the Minnesota State Society last June, said that he had found the columns of the dental journals closed to his articles on 'Oral Prophylaxis'."

\* \* \* \* \*

"'Trust journals,' as he styles them. He does not hesitate to mention names and dates, narrating his fruitless efforts to reach the pro-



## ITEMS OF INTEREST

fession through the columns of the *Cosmos*, the *Digest* and the **ITEMS OF INTEREST**. If the facts are correct as set forth in Dr. Smith's paper (and if they are not it would be well for these editors to deny them), then is our journalism subject to the most deplorable imperialistic and coercive influence."

I wrote the essayist and asked him to bring me those facts and dates.

**Dr. Fisher.** I have them and will give them to you when I close the discussion.

**Dr. Ottolengui.** I can not answer them then. I would like to have them now.

**Dr. Fisher.** You are discussing the body of my paper, Dr. Ottolengui.

**Dr. Ottolengui.** Evidently if the gentleman does not wish me to answer I can not answer, but if the society wishes me to relate my experiences with Dr. Smith I am perfectly willing to relate them. Does the Society wish me to continue? (Cries of "Go on, Go on.")

**Experience with Dr. D. D. Smith.** Dr. D. D. Smith is a gentleman having a great deal of ability, but I deny the propositions herein set forth.

"If he or any other reputable member of this profession has something that he considers worth the attention of his fellow practitioners he should have some means of placing them before us."

Follow that rule and every man in the United States who thinks he has something of importance must find a place in your magazine. You might as well have no editor, a proof-reader would be quite sufficient.

I do not remember having refused any manuscript from Dr. D. D. Smith. I do recall this circumstance. I publish for the New Jersey State Dental Society; Dr. Smith read a paper before that society which was written in pen and ink on approximately six pages of manuscript. Dr. Smith, if I remember rightly (and I beg his pardon if I am wrong), wrote and asked me for the paper to be returned to him for revision.

He retained it beyond the time when it was possible for me to use it in the number in which I had indicated to him, and I then wrote a courteous letter reminding him of my previous request, and asking him for the return of his manuscript. To my utter amazement he sent me a printed pamphlet covering about fifteen pages of printed matter as his paper read before the New Jersey Society. I wrote and told him I



## SOCIETY DISCUSSIONS

understood that the paper read before the society was the property of the New Jersey Society, and that since he had seen fit to set it in type and print it in pamphlet form I thought I had the right to ask him if he did so with the idea of using it in pamphlet form, and if so whether he intended to distribute it prior to its publication in *ITEMS OF INTEREST*, because if he did, we would not publish it, as we do not publish private pamphlets in our magazine, and if he had decided to make a private pamphlet out of what was the property of the New Jersey State Dental Society, I should prefer not to print it.

He wrote back and told me that he had long known that editors of dental papers took themselves with unnecessary seriousness, that they entirely overlooked the fact that they were merely editors and not gods, and that they have no superior intelligence and no superior rights over other men, and a lot more of a similar kind that I need not recall at the present time; and he added that he believed it was his personal right to have his paper set up in type for his own convenience in reading and revising, and that he would promise me that he would not transcend the high rights of *ITEMS OF INTEREST* by publishing his pamphlet prior to its publication therein. I took the gentleman at his word and published the paper, telling him what issue I would print it in. He sent a copy of his printed paper to Dr. Bethel and asked him to print it in his magazine. Dr. Bethel wrote him, stating that he understood the paper had been read before the New Jersey Society, and was therefore its property in the first place, and secondly, the property of *ITEMS OF INTEREST*, and that he could not take the liberty of publishing the paper without the permission of that Society and of that journal.

Dr. Smith wrote back to Dr. Bethel and told him that he was only one more of the general class of impertinent editors with whom he had to deal, and he would strike Dr. Bethel's magazine off his subscription list and make a personal complaint to the owners of the magazine. I believe Dr. Smith's contributions, his clinics and his published papers have done a great deal of good, but Dr. D. D. Smith is very fond of having his material printed as he wants it and when he wants it, and for these reasons I have no doubt that other editors feel just as I do, that the material is not worth the trouble it takes to get it.

I have no recollection at all of positively refusing any material of Dr. Smith, nor do I remember ever having told Dr. Smith I would not publish for him; I rather fancy that Dr. Smith has just imagined it—but by chance he has a very good imagination.

Then in Dr. Fisher's paper he says:



## ITEMS OF INTEREST

### **The Second District Society Incident.**

"As another illustration of this influence, let me narrate this recent incident in one of our dental societies. The Chairman of the Executive Committee was the editor of a journal. This journal had been sharing the expense of the stenographer who reported the society's proceedings. The Executive Committee thought that the journal should bear the entire expense of the stenographic report, so the Chairman in his report to the society said, and this in a pleasant, patronizing manner, that the Chairman of the Executive Committee had persuaded the editor of the journal (that is, he had persuaded himself) to bear the entire expense of the society's reports."

One may say a dog weighs forty pounds or that a man is seven feet high, but when you say that a man talks to a society in "a patronizing way," that is merely the reflection of your own mind. I am the man, and I did not intend to patronize that society by any manner of means. That is simply a reflection in a mirror; a faulty mirror.

I have invited the President of the Second District Society to-night, as well as the Chairman of the Executive Committee, at the time when this matter was first brought up in this society, and I hope they will be allowed to speak on this subject.

Personally I fail to see how it could possibly be any reflection on a society, professional or otherwise, for a journal which prints a report of its proceedings to supply its own reporter, and I fail to see how that places the society under any obligation.

It is the custom in reportorial work that the reporter shall be a man furnished by the journal sending him to the meeting. Consequently if ITEMS OF INTEREST pays for the stenographer, it pays, not any of the running expenses of the society, but simply for the matter which it gets. A recommendation which the essayist has made is that a journal should pay for the material which it prints, therefore I fail to see the reflection on the society, but I would like to call the essayist's attention to this point. I admit the right of any one to comment on the published reports of a society's proceedings, but the private business of a society is private, and no gentleman with any refinement of feeling would introduce into a paper which he intends shall be published, a report of some of the private business of a society where he was the guest.

Dr. Fisher says:

### **Paid Contributions.**

"What will be the result? The writer and investigator in our ranks will be stimulated to great activity. You and I will take a great interest because we are sure of the best that can be procured; and between the instructor and the student in our profession, will be a live national organ."



## SOCIETY DISCUSSIONS

Now I differ with the gentleman there in a perfectly friendly spirit. I believe that the real investigators, the real students, the gentlemen that burn the midnight oil, do not burn it for money. I do not believe that Black would have dug out any more scientific facts at a dollar a piece than he has for nothing, and I do not believe that Williams or any of those men would do so. The truth is that the real scientist is a man in love with the investigation which he makes, and having made it, he gives it to his co-workers. The promise of money does not furnish this spirit as the Institute of Stomatology, I believe, has discovered. I think they offered two hundred and fifty dollars to stimulate that kind of work, and they did not get it. I have thought of that many times—we have plenty of money, I never ask the publishers what I shall spend, and could easily offer cash for papers, but I should simply be inundated with trash that I should have to read over and return. The real investigators are not writing papers for cash, they are writing them for charity; they are solving problems for the love of solving them.

Then Dr. Fisher says:

### **New Instruments.**

"In the editorials of the journals now published, do the editors report upon new instruments, preparations and methods employing these new instruments? Most of them have a department for the review of books and magazines, but nothing is said of the products of the manufacturer."

That is not true. I see no reason why an editor should make it his business to experiment with all the new materials that come out and publish the results. But if he did it would be "one man" talking about it, and you would be told that all these fellows were in a trust and that it was only an advertising dodge. Personally I am very careful to see, speaking for the magazine itself, that we shall not boom the things that are advertised for sale. But where a dentist finds something useful to him and writes an article about it and sends it to me I make no investigation, but print it. I remind you of Dr. Hart Goslee's articles, which ran for several years in our magazine, in which he recommends various products and goods for sale by manufacturers distributed all over the United States. All of them were, however, tried and tested by himself, and therefore we were willing to publish those articles.

The essayist further says:

"No adverse views of the profession are sought and I am sure would never be published were they offered."



## ITEMS OF INTEREST

That is one more blanket insult to all the editors, which is absolutely false so far as I am concerned.

I want to say one thing about our practice. I do endeavor to protect persons, all persons in the dental profession except one—myself. If any gentleman in the United States has anything to say in criticism of myself and will send it to me we will print it; but if they sent anything in criticism of the C. D. A. I should probably send it over to the C. D. A. first to see whether they wanted it printed.

Oh, I think I have said enough.

I just want to say in conclusion one thing. I want to ask a question. I understand that Dr. Harlan is to follow me. Dr. Harlan has been the editor of a trade journal for a number of years, and I want him to tell us very frankly whether he was independent in his conduct of that journal, or whether the Justi Company told him what to do, what to print and what to leave out. If Dr. Harlan was free and independent in the management of his journal it seems to me he might have told his associate, Dr. Fisher, that at least there was one magazine where an editor was untrammelled, and that might have led to the suspicion in Dr. Fisher's mind that perhaps there were others.

I am going to ask Dr. Fisher, if he doesn't mind telling us, what he expected to gain by reading this paper.

I will tell you what I think is the object of this paper. This is an attack on trade journals; the very title of the paper is an attack, "Imperialism—Coercion," the whole trend of the paper is that the journal and its editor publishes what he pleases and keeps out what he pleases. Now this paper is a criticism of trade journals, a society has been selected for its reception which publishes its proceedings in a trade journal, and it seems to me that there is an effort here to test the question and put the editor of a trade journal in a position of either accepting something in criticism of himself and others of his kind, or else of rejecting it and so substantiating the claim of the writer.

I want to say right here that I personally shall refuse to edit this material, but I shall print whatever the society desires me to print.

(Applause.)

The Central Dental Association, as stated by  
**Dr. H. W. Harlan.** Dr. Meeker in his opening remarks, has not only listened to, but has invited, discussion on all topics relating to dental practice, dental journalism, etc., and so far as I am concerned I did not come here to discuss Dr. Ottolengui's remarks at all, and I do not intend to; I simply came here to discuss the paper of Dr. Fisher.



## SOCIETY DISCUSSIONS

I did not see his paper until it was typewritten, I did not know what he was going to have in the paper, and did not suggest to him even the writing of the paper. Consequently I am in the same position here to-night as every other member of the society. I have read the paper because I received a typewritten copy last Tuesday or Wednesday. I looked it over and I said to Dr. Fisher, "You must not be surprised if I should make some remarks which will not be pleasing to you," and Dr. Fisher said "Go ahead."

Dr. Ottolengui asked me one question in his discussion which I will answer now.

I was the originator and organizer and furnished most of the money for starting the *Dental Review*, of Chicago, twenty years ago. I had four associate editors in the beginning, who contributed small sums of money which I gradually replaced, and became the sole owner. After publishing it for two years I found that it was impossible to attend to the business of the management, the duties of an editor and the conducting of my profession, as well as acting as a professor in a dental college, so I sold the journal. I sold it to the house of H. D. Justi & Son, with the privilege of editing it in my own way. I had not been editing that journal more than two or three years when the very thing that Dr. Ottolengui says has come to him, in one way or another, came to me. An advertiser, who was not the publisher, took a page or two pages, and expected reading notices connected with the advertisement. Several times during my experience as an editor those clippings were sent to me with the expectation that they would gain entrance to the journal. Well, they did not. So sometimes there was a little friction, and I resigned the editorship and stayed out one year; then the publisher wanted me to edit the journal again, and from that time until the time I ceased to edit it, intimations that I should publish clippings favorable to the things that were in the advertising pages never came to me.

This goes back twenty years, and it appears to me now there are only a few dental journals that do publish reading notices. I do not think I ever saw one in *ITEMS OF INTEREST* nor in the *Cosmos*, but I do remember some journals where such notices appear, and it is not necessary for this discussion to mention those, for I could not put my finger on any particular thing.

One thing I noticed during my editorship, which covered a period of sixteen years; if a paper read before a society spoke disparagingly of some of the products of the house that published the journal, they were very anxious that it should be put very mildly, and if it spoke very favorably of the product of some other house, well, I would hear: "What is the particular necessity for publishing that." They would not put that



## ITEMS OF INTEREST

in writing, but they would say it in conversation, or over the telephone, or something like that; so that you had the feeling that they would be very glad if you would print comments favorable to their goods and very glad if you would leave out comments favorable to their competitors. Those are some of the experiences I had in connection with publishing the journal.

I came here to-night to speak of dental journalism in a sense possibly different from what has been dwelt upon in the paper and in the discussion by Dr. Ottolengui.

I would contrast our dental journalism with the best examples of medical and surgical and professional journalism as found in this country. The articles found in journals like *The Therapeutic Gazette*, in the *New York Medical Journal*, in the *Journal of Applied Chemistry*, in the *American Microscopical Journal* and journals of that class are of a different caliber, and they are better edited as a rule than the articles which appear in our own journals. My idea of the functions of a dental editor is that he should edit; it is not necessary that he should write editorials, but that he should edit papers and articles so that they will appear in the plainest and smoothest and most understandable language. Some of the medical journals in this country do not have any editorials at all; they have notes and comments; while some of our dental journals publish the greatest mass of miscellaneous stuff about fires and robberies and divorces and personal matters of that sort, which are beneath the notice of any dignified, respectable dental, medical or any other professional journal. I allude particularly to things of that kind which appear in a journal like *The Dental Digest*, which pretends to speak for an association of dentists organized for protection; and to articles that appear in a journal called *The American Dental Journal*, and to a great many articles which appear in the one Dr. Ottolengui mentioned. There are personal items in that journal which have no place in any dental journal, in my opinion. Take the *Dental Register* and no such offensive articles are published there at all, or the dental journal published in St. Louis called *The Dental Era*, and nothing of that kind appears. I am happy to say nothing of the sort ever appears in the *Cosmos* nor the *ITEMS OF INTEREST*, and I do not think there is anything of the kind in the *Dental Brief*. But several of the others publish cheap witticisms and news summaries and so forth that have no place in any dental journal, and I wish to condemn that species of journalism as being demoralizing and not uplifting in any manner at all.

Dr. Ottolengui and myself have had some little correspondence with reference to these matters, and I do not approve of Dr. Ottolengui's method of editing a journal; I told him so frankly, I have told him so



in writing, because I consider it is the function of an editor to edit, and it is not necessary that he should preach. If he has some matter of paramount importance to the profession concerning which he has special knowledge, or upon which he has thought much, then it is his business to talk about it; but if he wants to talk about professional things and bring them up as though they were of the greatest importance to the whole profession, I negative that. What we need in this country is better educated editors, men who can discriminate and men who have encyclopedic information themselves. Our editors tell us things that are of the most elementary character. Of course, I do not say that all Dr. Ottolengui or Dr. Kirk or Dr. Patterson or any of them do is only this.

Look at the journals published in Europe to-day. But how do you know what is going on in Europe? Dr. Ottolengui says, "Excluding ITEMS OF INTEREST our American journals have more influence in the dental world than all the others put together." Most of the editors themselves can not read the productions that are published in the foreign journals. Some of the most scientific papers are published in France, Germany and Austria, as well as in England, and do we know about them—is any summary of them published in any of our American dental journals? Very few indeed. Once in a while I used to see a translation in the *International Dental Journal* from the German or French, and recently in the *Cosmos* we have had translations from the Spanish and French, as well as in some other journals, but very little indeed. I say, for the credit of American dental journalism, that our editors, no matter if they be employed by manufacturing and supply houses, should make it their duty to acquaint you and me and every other member of the profession in this country with what is taking place in the scientific world outside of America, and I think that our dental journals fall short in that respect. There are many matters of technique, for instance, in the subject that Dr. Ottolengui likes to toy with so much, orthodontia, in Sweden, Norway, Denmark, Russia, Switzerland and other countries of interest to us, for there are other thinking men and other ingenious men and other men who have had ideas outside of this country, and we ought to have the benefit of them; and when a man publishes an article on orthodontia or on operative dentistry or histology or something of that kind he ought to have a knowledge himself of the language in which these thoughts are published.

I did not come here to-night to talk about any personal grievance. I was attacked when I was an editor and did not care anything more about it then than Dr. Ottolengui does now; it just simply fell off my back like so much water because I was the responsible editor and there



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was nobody else had any authority of that kind. But I do not agree with Dr. Fisher about a staff. I would not—excuse me—give a damn for a staff, because if the staff does not know as much as the editor you can not get along. It is the editor's business to correct the mistakes that are made, and Dr. Ottolengui made at least one good point when he said that we cannot have one kind of teaching in one part of the book and another in another part.

Why, this paper, Dr. Ottolengui, is a very good thing for you and for me and for the Central Dental Association because it makes us all think. What are these gentlemen here for? They want to know what we think, and if I have anything worth telling them I stand right up in front of them and tell them to their faces. I say that you and Dr. Kirk and Dr. Bethel and all the other editors fail to do your duty in not keeping the American dental public acquainted with the thoughts and inventions and scientific researches of our friends in foreign countries. We are not the whole thing by any means. What do you suppose we have an International Dental Congress for, and an International Society, presided over by such men as Michael Foster and W. D. Miller, except for the bringing together of these men and rubbing together of their ideas and thoughts so that they may be beneficial to this country. We need these things so that we may have the best thoughts and the best work and the best endeavors of all the best men, of all the journals in this and every other country.

(Applause.)

Dr. Ottolengui brought up the point of publishing the private matters which occur in society meetings, and it does seem to me that if that is to be done it will become necessary for us to go into executive session when business is to be discussed. The making public of anything heard by a visitor to a society seems to me very much like a guest in a household going outside and repeating family matters. It should be remembered that whatever the society desires should be public property is published in due form.

But leaving that phase of the question I will say that the gentleman who has charge of publishing reports of our proceedings was told a year or two ago that if they were worth publishing they were worth sending a reporter after, just as a newspaper does. If a supply house thinks that it can control the business of the society by paying for the reporting of the proceedings, I should like to know why they waited a year or two before they consented to that arrangement.

But I think that sufficiently answers the point as far as the buying of the society is concerned. If there was any coercion in this case, as suggested by the essayist, I think it was on the part of the society which



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forced the journal to pay for the report of the proceedings. Furthermore, we stipulated that the typewritten report of the proceedings should be furnished to us, and only such matter published as we return to the editor for publication. I fail to see where we were coerced by the supply house.

I do not think the suggestion of publishing a journal under co-operative plans would be successful; there would be required a committee or staff to select papers for publication, and there would doubtless be a great deal of dissatisfaction with the character of the articles published. But that part of the discussion was very well covered by Dr. Ottolengui and I do not care to go any further into it.

I merely wish to vindicate the Second District Society and to point out that the poor downtrodden editor was coerced by us and not the society by him.

I came here to be entertained, and I have been  
**Dr. R. M. Sanger.** entertained very pleasantly. The literary effort of the essayist was entertaining, and I was reminded while he was reading his paper of the story of the young lady who was reading the Bible and suddenly looked up from her reading and said, "Grandma, Grandma, here is a typographical error in the Bible." "Kill it, my dear, kill it," said Grandma. It seemed to me the essayists position is very much the same as that of the young lady who was importuned to kill the typographical error in the Bible.

The subject of trade journalism, so-called, is one that has been in my mind for a long time, and I have looked with a great deal of anxious thought over the various journals which I read to find some flaw through which I could attack their position. I have failed to find as yet any trade journal in which its publishers were particularly lauded, or to find any editorial where the publishers were set on a pedestal as against their competitors, or a journal used for the exclusive benefit of the men who were paying the bills. Yet I have a sort of vague idea that we have had in the history of our profession one or two independent journals which have died because of the lack of money to carry them forward, because of a lack of support on the part of the profession; and the reason the profession did not support them was because they were getting just as good or better material for less money. After all we, as men, are controlled somewhat by the financial side of the question, and while \$5.00 is not so large a sum yet I do not think there is a man in this room who would pay \$5.00 for an independent journal when he can get a superior trade dental journal for \$1.00.

For that reason it seems to me that this is a tempest in a teapot; it seems to me that the paper, which is an admirable one in its way, is



based on a wrong premise, and that its writer has conceived the idea of being called to the high mission of a reformer in order to reform something that does not need reforming.

It is not my purpose to defend editors of dental **Dr. R. G. Hutchinson.** journals, nor to uphold the views of the essayist in the main. There is one point, however, that I deem it my duty to speak on, and as Dr. Ottolengui and Dr. Gould have both touched on that subject, my remarks must be to an extent a reiteration of what they have said.

I am astonished that a gentleman who poses as a teacher of ethics before this society should be guilty not only of a breach of etiquette, but of a breach of confidence, in bringing before us, in a paper to be published, the private business of a dental society of which he was the guest. As Dr. Gould has well said, if such things are to occur, our business should be conducted in executive session.

There was no need for Dr. Ottolengui to mention the name of the Second District Dental Society; there is but one society in this neighborhood, the chairman of whose executive committee is the editor of a dental journal, and it is for this reason that I feel warranted in speaking on this subject to-night.

As the matter has been made public, as chairman of the executive committee during the year prior to that in which Dr. Ottolengui held that position, I desire to state positively that an effort was made by that committee to have the dental journal publishing our proceedings bear the expense of reporting them, for just the reason that Dr. Gould has mentioned. We considered that we had valuable matter for publication; if that matter was worth publishing and our society bore the expense of producing it, the least the journal could do was to send their own paid reporter, and that is all they do.

I have been an officer of the Second District Dental Society for a good many years, and have been familiar with all the workings of that society covering a period of fourteen years or more, and I can declare authoritatively that the statement made by this essayist that "That society sold out to that journal for a few paltry dollars," is absolutely unwarranted and false, and that he has no right to make use of such matter, in the first place, and absolutely no proof to substantiate his assertion in the second place.

I have nothing further to say, for the subject has been well covered, but the idea of making such a statement as that the society sold itself out to that journal and then that the dental supply house owns the editor of the journal—why, it is disgusting.



I am afraid if I should attempt to speak on the subject of dental journalism I might be placing myself in the position described by Dr. Ottolengui—that of an amateur trying to tell a professional how to run his business. But I feel, as some of the men present here to-night who have spoken have expressed themselves, that a great many of the dental journals published to-day by the trade houses and dental supply houses have published matter of great value, and I do not know where the dental profession would have been, so far as the literature is concerned, if it had not been for these so-called trade journals.

I was very much interested in the paper, particularly in the sincerity of the gentleman who read it. He seemed to me to be very sincere. That is the only thing I can say for Dr. Fisher. I do not think I need to say anything for the other side, the trade journal, for I think it has been very thoroughly defended.

However, I do not see how we could get along without the trade journal. We have had the other journals, and they have failed; there may be a time come when the professional journal will come to stay, but thus far it does not seem to me that that time has been reached.

I desire to say a few words in reply to Dr. Harlan. I notice he admits that there was no coercion put upon him by his supply house, only a few suggestions; and it is a puzzle to me how those suggestions reached him. He said that if a paper was read condemning a Justi product the hope was expressed that it might be treated with mildness, and if a paper was read praising some product of a rival, the hope was expressed that it might not be necessary to print it. That would seem to indicate that he consulted with his publishers.

On the question of policy that Dr. Harlan outlined I must say that there may be many kinds of journalism, and the question of policy is but a question of policy. It does not follow that Dr. Harlan's journal, as he outlined it, would necessarily be better than a journal with a different policy. If a journal were published which gave a digest of the foreign literature it would undoubtedly be a valuable journal with a valuable policy, but I do not think it follows that a journal which has not that policy is, necessarily, to be condemned. I mean nothing at all against the foreign magazines. We have tried Dr. Harlan's scheme. We had an interpreter who could read seventeen or eighteen languages—that is, everything from gibberish to Hebrew—and I had him translate from all the foreign magazines the titles of the articles and the names of the authors, and then such papers as seemed to me to promise some-



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thing. Only a very short time ago, in clearing out a desk, I found two drawers full of that manuscript which, after having been translated and typewritten, I was unable to use. We did for a time publish what we called a department of "European Progress," but it did not promise well and we abandoned it, not because we got nothing out of Europe, not because we can not get anything out of Europe, but because we have a different policy, which is the taking up of special subjects by special writers. We have for a number of years, as you know, published articles by Dr. Hart Goslee on exceedingly practical subjects. We have for over a year had in preparation for us a series of articles on porcelain; they begin in the next issue, and will, from month to month, cover the entire field of porcelain work. We have in preparation another series dealing with oral surgery, such as can be practiced by a dentist, a series which will probably run for two or three years. It has seemed to me there was a field for a policy of that kind; that there is a field for the publication of special articles on special subjects by men specially adapted for the writing of them, and I fail to see why my policy is any worse than one which would lead me to translate *everything* published in Europe for the sake of publishing the scientific papers produced on the other side.

Every one missed the keynote, I think, except  
**Dr. Fisher.** Dr. Watkins. I thank you, Dr. Watkins, when you say I am sincere.

My paper was not written on the spur of the moment; it was originally intended, not as a paper for a society, but merely as a circular letter to prominent men in the profession asking them if they thought as I did to quietly exert their influence toward what I considered a needed reform.

I note that Dr. Ottolengui could not depart from his usual sarcastic deprecatory manner. But perhaps we should pity him rather than rebuke him. But probably he is only capable of taking one view of the subject, the one which will afford him an opportunity to display that disagreeable, sarcastic manner.

Dr. Ottolengui, in a paper read before the American Society of Orthodontists, made a plea for the expurgation of commercialism which he claims exists in the relations between the orthodontist and the dental practitioner. I challenge him and all other editors (there is nothing personal in this, I have never known Dr. Ottolengui personally; I met him to-night for the first time) to have the courage to extend his vaunted ideal of ethics to that journalism of our profession; to that evil that exists in a more flagrant manner and has existed for years, than the one which he attacks.

The time was, in our profession, when we did need the trade journals



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—and we need them now. I have not asked you to do away with the trade journal. I have pointed out what I consider to be a deplorable condition. I have asked for a remedy of that fault, and above all, I have asked for a new journal, the representative journal of a national organization. The trade journal is an evil that I think is more far reaching and disastrous in its effects than the one which he antagonizes in the relation between the orthodontist and the dental practitioner, and I would say to him, "First cast out the beam from out of thine own eye and then couldst thou see more clearly to cast the mote out of thy brother's eye."

I am glad Dr. Harlan has told you he knew nothing of my paper. He was surprised, and he told me, as another prominent dentist who called me over the 'phone to-day did, one I do not know very well, and who said, "Call me up to-morrow after the wreck. I congratulate you on your bravery, it is a pity that some of the older men in our profession have not earlier in the history of the profession seen fit to state what you are not afraid to state."

It has taken courage, gentlemen; I have felt timidity, for I am a young man; but do not deprecate the brain of a young man.

In regard to being the guest of a society and having brought one of their skeletons before you, to the president and members of that society I will humbly apologize. I did not dream that I was bringing one of your skeletons before the public; if I had known it was a skeleton, as you all admit and state it is, I would have left it in your closet.

**Dr. Hutchinson.**

Mr. President, I protest.

**Dr. Fisher.**

They admit it is a skeleton, something they did not want brought before you.

**Dr. Gould.**

No, Mr. President, it is private business, not a skeleton.

**Dr. Fisher.**

Am I to close the discussion of my paper, Mr. President?

**The Chairman.**

Dr. Fisher has the floor and is closing the discussion.

**Dr. Fisher.**

I ask you, is the man who writes for the secular press without compensation ever rated as high as the man who receives a check for his production?

Subscribers read with a greater degree of interest articles which were thought worthy of purchase.

I still hold to my pet dream, if you call it so, of an editorial staff, although every one has been against it this evening.

Dr. Ottolengui wrote to me to-day saying he would like to have the facts I brought out about Dr. Smith.



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It is in an article published in *The Dental Review*, in a very old number—away back in the month of February, 1907.

**Dr. Sanger.** What is that date again?

**Dr. Fisher.** February, 1907.

**Dr. Sanger.** This last month?

**Dr. Fisher.** Yes—a very old publication! There Dr. Smith says:

“The article on ‘Alveolar Pyorrhea: Its Cause, Sequelæ and Cure,’ was read before the New York State Dental Society in 1903, and should have appeared with the transactions of that society as published in the *Cosmos* of that year. It was evidently ruled out, not by the society, but by the editor, Dr. Kirk, for reasons which may be considered some time later.”

Gentlemen, I am not defending Dr. Smith, I do not know him. Dr. Ottolengui has pictured Dr. Smith to you about as he is, as I have heard from other sources—well, they did not paint him quite as bad, but they said he was what we term in the profession “a crank.” So much in justice to Dr. Ottolengui’s remarks.

And the article says:

“Dr. Crouse, editor of that once independent journal, the *Dental Digest*, after a day—July 6th, 1903—in my office, where, with others, he saw the benefits of this system of practice exhibited in the mouths of about twenty patients, as he was leaving, placed his hand on my shoulder and said, ‘Smith, I will give you an editorial on this.’ Why is it that on this day Dr. Crouse has failed to present one word descriptive of what he then saw, or to give to the profession anything of his impressions respecting this most important object.”

\* \* \* \* \*

“Dr. Ottolengui, of the *ITEMS OF INTEREST*, has been invited to my office on three separate occasions to witness exhibits prepared for the profession. In each instance he has sent in reply what seemed to me to be a trivial excuse\* for not attending. He also has failed to make mention of the subject in any issue of the *ITEMS*.”

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\*The following extracts from correspondence will better enable the reader to judge as to the “trivial excuses” offered.—EDITOR.

Extract from letter to Dr. D. D. Smith, dated January 23, 1905:

“I regret my inability to have been present at your recent clinic, to which you courteously invited me, but I have a sister lying critically ill with a post, operative pneumonia, which not only made it impossible for me to leave the city, but has caused me to neglect my correspondence.”

April 18, 1906.

DR. D. D. SMITH, 1629 Walnut St., Philadelphia, Pa.

MY DEAR DR. SMITH: When I read your letter inviting me to attend your next exhibition, I determined to accept it in spite of your prophecy that I would not.



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"Journals of a lesser circulation at one time desirous of publishing these articles, apparently warned by the head of the trust magazines, have failed to do so.

"*The Boston Medical and Surgical Journal*, *The Philadelphia Medical Journal* and *The Cincinnati Lancet Clinic* have treated this matter with commendable consideration, two of these journals having published 'Systemic Infection' and two 'Pericemental Abscess,' with editorial mention."

It will not do for the editors of the journals to-day to underrate the critical faculty of the average reader, and when one of the members of the profession, although he is young and has been in your ranks a little less than ten years, has the courage to rise and criticise, I say with our esteemed Milton—and I am so glad to find some one whom Dr. Ottolengui would not attack—I say: "Be wary how you discourage the young men of the profession to-day. Do not trample on him. If he is wrong show him." He is glad to be taught, and if you older men in the profession do not teach us, where are we to get our knowledge?

Again I refer you to what Dr. Watkins said. I am all sincere; I think that my profession can edit a creditable journal, and if each and every one of you would give it the careful thought and study that I have, the result might be reached. For five years I have thought over it, have read every dental journal that is published and a great many of the medical journals, have compiled my facts from time to time, and have reached the conclusions set forth in my paper to-night.

The man who aims at a star may light on a rather high pinnacle some day. I cast this paper of mine toward a high star in dental journalism with a great hope that some little good may come out of it.

Naturally, of course, I turned to my appointment book to see whether the engagements of that date could be put off, and to my regret I find that I have given from ten to twelve in the morning with an additional hour in the afternoon to an invalid lady who lives out of the city and for whom it has been planned thus far in advance that she should be brought to New York to have all that is necessary to make her comfortable done in one day. Under the circumstances I do not feel that it is at all possible for me to cancel this engagement. I therefore must risk your displeasure.

I suppose it would be wiser for me to stop this letter at this point, but since you have expressed a doubt as to my willingness to come to your clinics, perhaps it will *not* be amiss for me to say something that has been in my mind for a long time. Is there any reason why you are unwilling to invite Dr. Ottolengui to any of your exhibitions? It has seemed to me that in all three of your notes your invitation was extended to the editor of "ITEMS OF INTEREST" rather than to me. This makes me feel somewhat like an actor friend of mine, who told me he always looked askance at society engagements because he was so often asked to recite.

Yours very sincerely,

R. OTTOLENGUI.



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Mr. President and gentlemen of this society, and all who have entered into this discussion, I thank you.

On motion a vote of thanks was extended to Dr. Fisher for his paper and for the courageous manner in which he presented it.

We consider that we have a successful society in the Second District and that we have no "skeleton," and I therefore object to the word the essayist has used. As a matter of courtesy to our society we ask that the word "skeleton" be expurgated from the report of the discussion.

**Dr. Gould.** Mr. President, I leave that absolutely with the executive committee of your society, sir.

**Dr. Fisher.** When I read a copy of this paper and noted the wording to the effect that Dr. Smith had claimed he had been unable to reach the public through the pages of various journals, including ITEMS OF INTEREST, I was much surprised, and I felt satisfied that the essayist must have some data, and I wrote and asked him for it.

**Dr. Ottolengui.** I call your attention to the fact that he was unwilling to give me that data prior to closing the discussion, and that it now appears that Dr. Smith accuses me only of not attending his clinics and making reports on them.

I appeal to you whether or not it is a part of an editor's duty to travel to another city so that he might act the part of reporter of clinics in another gentleman's private office, and upon failing to do so whether he is rightly open to criticism.

On motion adjourned.







Before the Odontological Society of New York, in January last, Dr. William H. Taggart, of Chicago, demonstrated a method of casting inlays of gold, using wax as a model and compressed air as a force. Prior to that date, who had heard of such a thing as a real cast filling? Yet within a few months numerous imitations of the Taggart machine have sprung into existence, and men have even already appeared at clinics, showing "Taggart Gold Inlays."

Has the profession been fair to Dr. Taggart in this matter? Considering the fact that Dr. Taggart's machine has not yet been placed on the market, had any one a right to imitate his method to the extent of using his name on clinic programmes?

Some of course will ask, "Why did Dr. Taggart show us this method and then not place the machine within the reach of all?" For a time this question was hard to answer, but the writer has been to Chicago, and knowing the interest that is taken in this matter, is pleased to be able to make a report on the present status.

Dr. Taggart is naturally of an inventive turn of mind. Unsatisfied with the existing modes of making gold inlays, all of which precluded



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the use of pure gold (except the laborious method of doing an actual filling in a metal model of the cavity), it occurred to him that it would be a great advantage to "cast" the filling. This problem he elected to solve, and he undertook this task with no thought of pecuniary advantage. But having solved it, and having given his demonstration in New York, he was at once overwhelmed with correspondence from two sources: manufacturers desirous of obtaining exclusive rights to make and sell the apparatus, and dentists eager to own one. Never has a profession been so impatient for anything as have the dentists been for a casting machine. Orders came from all quarters. But Dr. Taggart did not consider that his apparatus as shown at New York was yet perfect. He had previously made several casting machines, each of which accomplished the work, yet each one an improvement on its predecessor. If the men about the country who are making and selling "casting" machines would but visit Dr. Taggart's laboratory they would there more than likely find duplicates of their apparatus among the models which Dr. Taggart has abandoned.

It must be remembered that, not unnaturally, of the many orders for machines which reached Dr. Taggart a large proportion came from his personal friends. He therefore felt that he could not allow any dealer to make and sell his apparatus to his friends, and then within a few months place on the market his perfected apparatus. This explains the delay.

But Dr. Taggart has now practically perfected his casting apparatus, and his next public demonstration with it will be at the meeting of the New Jersey State Dental Society, which will be held at Asbury Park, July 17, 18, 19.

Dr. Taggart will not only cast gold fillings, but he has conceived the idea that as cast fillings must in the main be used for large restorations, or in preference to shell crowns, it will happen in many practices that the actual cost of so large a mass of gold would be so great as to be prohibitive. He therefore will exhibit a white metal for making cast fillings at low cost, which may be used where otherwise amalgam would be the resort, thus giving patients of moderate means the advantage of the cemented fillings, which has proven such a good tooth preserver.

Dr. Taggart will also show a combination gold and porcelain filling.





In places where the exhibition of gold would be unsightly, and yet where masticatory stress would seem to contraindicate porcelain, he casts an inlay of gold, having a box cut in it, in which he afterward fuses porcelain to veneer the exposed surfaces.

Undoubtedly it will be worth a trip to Asbury Park to see this demonstration.

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### **Brewster—Littig—Hart.**

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Within a period of a little over three weeks, three of the most prominent members of the dental profession in the Metropolitan district have died: Dr. Richard C. Brewster, Dr. J. Bond Littig and Dr. John I. Hart. Dr. Brewster was a member of the Second District Dental Society, and Drs. Littig and Hart were in the First District, but all three were members of the Odontological Society and all much beloved by the members thereof. Dr. Brewster died at his home in Brooklyn, after a long and painful illness, and a brief sketch of his career appears in this issue, as well as his portrait. Dr. Littig and Dr. Hart both died suddenly and practically without warning. It is a further coincidence that while Dr. Littig was the Professor of Prosthetic Dentistry in one of the New York schools, Dr. Hart was Professor of Operative Dentistry and was the Dean of the other school. The sad news of these two deaths comes to us as we are about to go to press, and fuller accounts will appear in our next issue. In the meanwhile we extend our sincere sympathy to the families of all three of our much beloved brothers.

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### **Richard C. Brewster, M.D., M.D.S.**

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Dr. Richard C. Brewster, a much beloved member of the Second District Dental Society, died at his home in Brooklyn after a lingering illness on May 18th. Dr. Brewster was born in Middletown, January 14, 1844, his parents being Joseph and Charlotte (Newman) Brewster, also natives of New York. Dr. Brewster was one of seven children, four of whom were boys. He was educated in New York City and was a graduate of the College of the City of New York. He entered a business career in 1864, but during 1865 and 1866 studied law, after which he became identified with educational interests as a teacher in Goshen, N. Y. There he remained until 1868, when he began the study of dentistry. In 1878 he received the degree of Master of Dental Surgery from the New York State Dental Society and the Board of Regents. He then began a study of medicine in the Long Island College, from which he was graduated in 1890. While a student in that institution he acted as dental surgeon in the Long Island College Hospital. He was also a dental surgeon to the Church Charity Foundation of Long Island from 1872 until 1899.

He was a member of the Medical Society of the County of Kings, the Kings County Medical Association, New York State Society, the Second District Dental Society, the Brooklyn Dental Society and the Odontological Society of New York. Dr. Brewster was married December 21, 1870, to Miss Carrie C. Lasher, the daughter of Brigadier Philip H. Lasher, who survives him. The Doctor was a Past Regent of the Long Island Council No. 173 Royal Arcanum, a member of the Alpha Lodge A. O. U. W., and was a member of the Lincoln Club. For many years he was a member of the Board of Managers of the Church Charity Foundation. In the death of Dr. Brewster the dentists of the Second District feel that they have met with a keen loss. His genial presence was ever welcome at the meetings, and his advice often sought by the younger members. This Society is peculiarly indebted to him for the interest and energy which he displayed in building up its library. The





members of the Second District attended in a body at the beautiful services which were held over his remains on the evening of May 20th at his residence. The burial occurred at Goshen.

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### **Cornelius Ackerson Marvin, D.D.S.**

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Dr. Cornelius Ackerson Marvin, one of the best known dentists of "Old Brooklyn," passed away after an illness of three weeks, of heart failure, in that city, at the residence of his daughter, Mrs. Robert G. Langdon, No. 186 Gates Avenue.

Dr. Marvin was born at Tappan, N. Y., and was in his eightieth year. He began the practice of his profession in Brooklyn in 1852, and his office was for many years on Clinton Street. He was a member of the Brooklyn Dental Association, the Brooklyn Dental Society, the Second District Dental Society, the New York Odontological Society, was elected permanent member of the Dental Society of the State of New York in 1869, was Vice-President 1870, and President in 1873, and was elected an honorary member of the Dental Society of the State of New Jersey. He received his degree of D.D.S. from the Pennsylvania College of Dentistry in 1867, and was Professor of Mechanical Dentistry in the New York College of Dentistry, 1873 to 1876.

Dr. Marvin prepared many papers for the dental societies and the *Cosmos* (from 1865), and the State Transactions published many of them. He was as ready to debate as he was to present his own views, and many of his associates can remember the pleasure they derived when Drs. Hurd, A. H. Brockway, W. H. Atkinson, Jarvey and Marvin got interested, for they never talked unless they had something of interest to say.

In 1872 he removed with his family to Montclair, N. J., became a member of the First Congregational Church (Rev. A. H. Bradford), and was a trustee for twenty-five years. His pronounced Republicanism also led to many stirring letters to the *Montclair Times*. He was identified with the Republican Club as a member and officer. His social life in Montclair, as a member of the Montclair Club, of the Musical and Dramatic Societies and other interests was always for the betterment of his associates. His vacations were spent in Sullivan County with his son, and when the death of son and wife broke up the home, he lived with one of his married daughters, but retired almost entirely from his former activities, so his old friends lost sight of him until the notice of his death reminded them of their loss.



## ITEMS OF INTEREST

In 1899 he gave up his Brooklyn office and practiced for a year in Montclair, then went to his daughter's, Mrs. J. Tenny, in Philadelphia, returning in the fall of 1906 to Brooklyn.

Dr. Marvin was a thirty-third degree Mason and a Past Grand Master, was a member of Altair Lodge No. 601 F. and A. M., formed and named the Constellation Chapter of the Royal Arch, and was a member of the DeWitt Clinton Council, Knights Templar.

Dr. Marvin was popular with all his associates, and did much to advance the interests of his profession, his church and his political party. His advice and counsel were much sought after, and a "helping hand" and voice were always at the service of those in need.

Dr. Marvin is survived by three daughters, Mrs. E. A. Raynor, of Bloomfield, N. J.; Mrs. J. Tenny, of Philadelphia, Pa.; and Mrs. R. G. Langdon, of Brooklyn, N. Y.

I. J. W.

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### George R. Leonard, D.D.S.

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Whereas, The hand of Providence has removed from our midst our honored member and active co-worker, Dr. George R. Leonard, of Mandan; and

Whereas, In his decease we have suffered the loss of a member who had an active interest in this society, and who had the welfare of the entire profession at heart;

Therefore be it

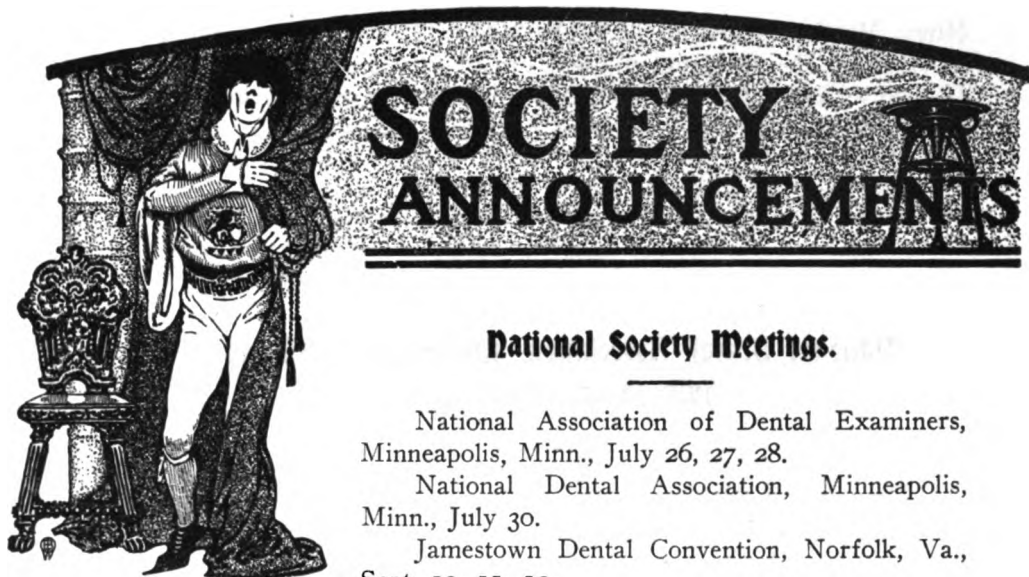
Resolved, That we, the members of the North Dakota Dental Association, in session in Fargo this 13th day of May, 1907, express to the members of his bereaved family our sympathy and sorrow in their affliction, and assure them of our admiration for his high personal and professional qualities; and

Resolved, That these resolutions be spread upon the records of this Association, a copy sent to the family of our departed member, and copies sent to the Dental Journals for publication.

J. L. GRAVES,,  
A. M. HARDAWAY,  
R. J. WASHBURN,  
Committee.

O. H. SOSSAMAN, Secretary.





### **National Society Meetings.**

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National Association of Dental Examiners,  
Minneapolis, Minn., July 26, 27, 28.

National Dental Association, Minneapolis,  
Minn., July 30.

Jamestown Dental Convention, Norfolk, Va.,  
Sept. 10, 11, 12.

American Society of Orthodontists, Detroit, Mich., Oct. 2, 3, 4.

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### **State Society Meetings.**

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Interstate Dental Fraternity, Minneapolis, Minn., July 29.

Maine Dental Society, Rockland, Me., July 16, 17, 18.

Minnesota State Dental Association, Minneapolis, July 30, Aug. 3.

New Jersey State Dental Society, Asbury Park, July 17, 18, 19.

Northwestern Dental Association, Portland, Me., Oct. 16, 17, 18.

South Carolina State Dental Association, Anderson, S. C., July 2,  
3, 4, 5.

Tennessee State Dental Association, Knoxville, July 8, 9, 10.

Virginia State Dental Association, Jamestown, Sept. 10, 11, 12.

Wisconsin State Dental Society, La Crosse, July 16, 17, 18.

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### **Interstate Dental Fraternity.**

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The Board of Governors of the Interstate Dental Fraternity will  
convene for the annual business meeting of the Order in Minneapolis,



## ITEMS OF INTEREST

Minn., Monday, July 29th, at the West Hotel. The annual banquet will occur during the week, and due notice thereof will be sent to the members as soon as arrangements can be made and the exact date fixed. It is hoped that the Fraternity will meet in large numbers on this occasion.

Dr. R. M. SANGER, National Secretary.

East Orange, N. J.

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### **National Dental Association, Minneapolis, Minnesota, July 30 to August 2, 1907.**

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The General Sessions of the Association will be held in the First Baptist Church, corner Tenth Street and Harman Place, and it is proposed by the Programme Committee, in consequence of a prevailing sentiment, that all papers be read so that the entire membership may have an opportunity to hear and discuss them. Only one Section therefore will be in session at the same time.

There will be sufficient time allowed in carrying out the programme so that each Section will have two sessions of at least three hours' duration, which should be ample to complete the work.

Membership in the Association is open only to delegates from State Societies, yet a most cordial invitation is extended to all reputable practitioners to attend the meeting.

Reduced rates on all railways, except in Minnesota, on the certificate plan, of a round trip for a fare and a third, has been secured, full details of which will appear in the official announcement.

Hotel Plaza has been designated as headquarters for the Association, while the Clinics and Dental Exhibit will be held at the National Guard Armory on Sixteenth Street. Hotels and rates are as follows:

The Plaza, \$2.00 per day and upward. European plan.

The West, \$1.00 per day and upward. European plan.

The Nicolett, \$1.00 per day and upward. European plan.

The Majestic, \$1.00 per day and upward. European plan.

For hotel reservations, etc., address the Chairman of the Local Committee of Arrangements, F. B. Kremer, Masonic Temple, Minneapolis, Minn.

The following is the programme as far as completed:





## SECTION I.

Dr. L. C. Bryan, Basle, Switzerland, "The Over-arch-bar in Bridge Work."

Dr. Emory A. Bryant, Washington, D. C., "Some Practical Experiences Theoretically Expressed."

Dr. Guilhelmina P. Mendell, Minneapolis, Minn., "Treatment of Malocclusions of the Deciduous Teeth."

Dr. Charles L. Hungerford, Kansas City, Mo., "Evolution."

Dr. Marcus L. Ward, Detroit, Mich., "The Effect of Excesses of Mercury Upon Shrinkage, Expansions, Edge-strength, Flow, Change in Composition and Stability of the Dental Amalgam Alloys."

Dr. C. M. Work, Ottumwa, Iowa, "Porcelain, the Cavity and the Matrix."

Dr. F. G. Corey, Council Grove, Kansas, "Physical Conditions of, or Pertaining to, the Human Teeth."

Dr. J. V. Conzett, Dubuque, Iowa, "Method of Replacing Broken Facings on Crowns and Bridges."

Dr. D. O. M. LE CRON, Chairman,  
Dr. E. P. DAMERON, Secretary, St. Louis, Mo.  
St. Louis, Mo.

## SECTION II.

Dr. Carroll H. Frink, Fernandina, Fla., "An Original Method of Casting Gold Inlays." (Illustrated with India Ink Drawings and Models showing technique.)

Dr. L. G. Noel, Nashville, Tenn., "Modern Methods of Combining Cohesive Gold with Non-cohesive Gold, with Tin and with Tin-gold."

Dr. Thomas B. Hartzell, Minneapolis, Minn., "Physical Characteristics and Surgery of Pyorrhea."

Dr. G. O. Orr, Jordan, Minn., "The Functions of the State Dental Society."

Dr. Charles McManus, Hartford, Conn., "Dental Literature."

Dr. WM. CRENSHAW, Chairman,  
Dr. J. J. SARRAZIN, Secretary, Atlanta, Ga.  
New Orleans, La.

## SECTION III.

Dr. Victor C. Pedersen, New York City, "Buccal Manifestations of Syphilis."



## ITEMS OF INTEREST

Dr. Herbert L. Wheeler, New York City, "The Prevention of Disease of the Mouth and Teeth by Proper Oral Prophylaxis in the Young."

Dr. Truman W. Brophy, Chicago, Ill., "Anatomy of the Palate—Normal and Cleft."

Dr. Joseph Head, Philadelphia, Pa., "Prophylaxis with Special Reference to the Wisdom Teeth."

Dr. Robert T. Oliver (U. S. A. Dental Corps), "Dental and Oral Lesions of Leprosy."

Dr. Arthur H. Merritt, New York City, "Mouth Infection the Cause of Systemic Disease."

Dr. WM. CARR, Chairman,

Dr. M. L. RHEIN, Secretary,  
New York City.

New York City.

In addition to the above, the largest and most varied Clinic the Association has ever held will be given on Wednesday and Thursday.

A. H. PECK, President,

C. S. BUTLER, Secretary,

Chicago, Ill.

Buffalo, N. Y.

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### National Dental Association.

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I regret exceedingly to say that I have heard from very few of the State Chairmen, therefore it is not possible to give the programme in detail.

The Headquarters in Minneapolis will be the Plaza Hotel. The clinics will be held in the Armory, one-half block from the hotel.

The clinic will be the largest the National has ever held. There will be sixty-five practical operations on Wednesday, July 31st, and the same number of operations on Thursday, August 1st.

About forty of these one hundred and thirty operations will be the making and placing of inlays. The remainder of the operations will be divided into gold, amalgam, tin, cement, and gold and tin fillings, the removal of calculus, the administration of local anesthetics, etc., etc.

There is every evidence at hand that there will be the usual large number of men holding table clinics. Until the various chairmen make their reports I am unable to complete the programme.

Dr. W. N. Murray, of Minneapolis, will have charge of the inlay section.

Dr. F. S. Yeager, of St. Paul, will have charge of the table clinics.

Dr. W. A. Grey, of St. Paul, will have charge of the surgical clinics, of which there will be a number.



## SOCIETY ANNOUNCEMENTS

All of these men will appoint their own corps of assistants.  
Drs. Carlson, Cox, Wells, Wilson and myself will be in the clinic room, and we will to everything possible to assist the operators.

After using considerable persuasion, Dr. J. B. Ridout, of St. Paul, has agreed to give a blow-pipe demonstration. It is well worth making a trip from New York to Minneapolis to witness this clinic. I am able to unhesitatingly endorse the demonstration which Dr. Ridout will give, for I feel that it will be one of the most interesting and attractive of all the table clinics.

Dr. Bryan and Dr. Muller, of Switzerland, are journeying to the meeting with some things in the mechanical line which they feel are all important and of the greatest value for everybody to see.

These are simply special features.

I said there would be one hundred and thirty practical demonstrations in Minneapolis on the two days of the clinic. I speak in this way for the reason that the men belonging to the Metal Filling Clubs in the Northwest have requested to be allowed to fill any and all vacancies which might occur. This action on their part is not only most laudable but it at once assures those who will attend the meeting of witnessing the largest operative clinic ever arranged for the consideration of the members of the N. D. A.

I return most sincere thanks to all who have been so willing to work and who have assisted Dr. Clack and myself to arrange the best clinic possible.

I also wish to return many thanks to the editors of the different Dental Journals for their assistance and co-operation. It was very kind of you, gentlemen.

My programme at present contains the names of the following gentlemen who will make operations:

### SURGICAL CLINIC.

W. H. C. Logan, Chicago. L. F. Luckey, Birmingham, Ala.  
W. H. DeFord, Des Moines, Ia.

### INLAY SECTION.

|                                    |                                     |
|------------------------------------|-------------------------------------|
| R. H. Volland, Iowa City, Iowa.    | L. C. Elkins, St. Augustine, Fla.   |
| C. H. Farrand, LaCrosse, Wis.      | C. A. Sevier, Jackson, Tenn.        |
| F. H. Bimrose, Butte, Mont.        | A. G. Fee, Superior, Wis.           |
| C. M. Work, Ottumwa, Iowa.         | F. R. Fisk, Spokane, Wash.          |
| W. H. Cudworth, Milwaukee, Wis.    | G. W. Schwartz, Chicago.            |
| J. E. Meyers, Minneapolis, Minn.   | J. D. Park, Duluth, Minn.           |
| W. C. Pike, Minneapolis, Minn.     | A. A. Jennings, Milwaukee, Wis.     |
| T. W. Russell, Minneapolis, Minn.  | S. J. Pattison, Fargo, N. D.        |
| A. E. Peck, Minneapolis, Minn.     | P. B. McCullough, Philadelphia, Pa. |
| F. B. Kramer, Minneapolis, Minn.   | C. G. Von Suessmilck, Duluth, Minn. |
| J. O. Wells, Minneapolis, Minn.    | A. T. Reeves, Selma, Ala.           |
| W. N. Murray, Minneapolis, Minn.   | C. H. Seeger, Manitowoc, Wis.       |
| W. J. Brownlee, Devils Lake, N. D. |                                     |
| J. Q. Byram, Indianapolis, Ind.    |                                     |



# ITEMS OF INTEREST

## OTHER OPERATIONS.

|                                      |                                     |
|--------------------------------------|-------------------------------------|
| H. J. Beemer, Newton, N. J.          | O. C. Zieger, Owatonna, Minn.       |
| J. J. Booth, Marion, Iowa.           | G. N. Beemer, Mason City, Iowa.     |
| E. S. Brown, Edina, Mo.              | C. N. Booth, Cedar Rapids, Iowa.    |
| F. Bernard, Kenneth Square, Pa.      | A. D. Black, Chicago.               |
| J. V. Conzett, Dubuque, Iowa.        | T. F. Cooke, Burlington, Iowa.      |
| W. G. Crandall, Spencer, Iowa.       | W. R. Clack, Clear Lake, Iowa.      |
| Wm. Finn, Cedar Rapids, Iowa.        | A. C. Fawcett, Rochester, Minn.     |
| J. W. S. Gallagher, Winona, Minn.    | C. J. Grove, St. Paul, Minn.        |
| C. L. Gunn, Gadsden, Ala.            | L. Greenbaum, Philadelphia, Pa.     |
| T. B. Hartzell, Minneapolis.         | G. S. Handy, Natchez, Miss.         |
| F. A. Hardgrove, Fondulac.           | P. H. Jones, Clear Lake, Iowa.      |
| F. S. James, Winona, Minn.           | W. B. James, Tracy, Minn.           |
| W. O. Lovett, Brewton, Ala.          | A. M. Lewis, Austin, Minn.          |
| C. B. Miller, Cedar Falls, Iowa.     | H. R. Mavis, Minneapolis, Minn.     |
| W. H. K. Moyer, Little Falls, Minn.  | G. D. Moyer, Montevideo, Minn.      |
| S. G. McCallin, Chicago.             | F. N. Owens, St. Paul, Minn.        |
| C. H. Oakman, Detroit, Mich.         | A. R. Owre, Minneapolis, Minn.      |
| J. B. Pherrin, Central City, Iowa.   | W. S. Pugh, Mobile, Ala.            |
| F. J. Robinson, Chippewa Falls, Wis. | W. J. Reynolds, Selma, Ala.         |
| F. G. Richardson, Mason City, Ia.    | C. H. Robinson, Wabasha, Minn.      |
| J. W. Slingluff, Burlington, Iowa.   | A. C. Searl, Owatonna, Minn.        |
| Alice M. Steeves, Boston.            | F. G. Van Stratum, Hurley, Wis.     |
| J. F. Wallace, Canton, Mo.           | C. E. Woodbury, Council Bluffs, Ia. |
| P. H. Wright, Oxford, Miss.          | T. J. Yerke, Owatonna, Minn.        |

The following gentlemen have signified their intention of holding

## TABLE CLINICS.

|                                     |                                   |
|-------------------------------------|-----------------------------------|
| J. E. Argue, Red Lake Falls, Minn.  | S. S. Stowell, Pittsfield, Mass.  |
| A. P. Burkhart, Buffalo, N. Y.      | E. F. Tinker, Wheatland, Iowa.    |
| H. L. Cruttenden, Northfield, Minn. | O. A. Weiss, Minneapolis, Minn.   |
| J. C. Corcoran, St. Paul, Minn.     | L. C. Bryan, Basel, Switzerland   |
| I. N. Carr, Durham, N. C.           | G. A. Bowers, Nassua, N. H.       |
| C. H. Frink, Fernandina, Fla.       | W. S. Curtis, Montpelier, Vt.     |
| W. L. Fickes, Pittsburg, Pa.        | J. P. Carlisle, Greenville, S. C. |
| G. F. Hauser, LaCrosse, Wis.        | F. E. Dodson, Grand Rapids, Mich. |
| F. R. Houston, Green Bay, Wis.      | W. N. Fine, Philadelphia, Pa.     |
| C. W. Jones, St. Paul, Minn.        | E. A. Honey, Kalamazoo, Mich.     |
| C. H. Land, Detroit, Mich.          | J. A. Hall, Collinsville, Ala.    |
| Eugene Muller, Zurich, Switzerland  | G. F. Jernigan, New York, N. Y.   |
| G. C. Marlow, Lancaster, Wis.       | J. L. Kelly, St. Paul, Minn.      |
| F. A. Peese, Philadelphia, Pa.      | C. W. Lokey, Talladega, Ala.      |
| J. W. Ritter, Charleston, Ill.      | W. H. MacNeil, Minneapolis, Minn. |
| E. F. Summermeier, Eau Claire, Wis. | C. P. Peterson, Mankato, Minn.    |



## **SOCIETY ANNOUNCEMENTS**

J. B. Ridout, St. Paul, Minn.  
C. F. Rodolf, Muscoda, Wis.  
A. C. Steuerwald, St. Angars, Ia.

A. J. Sawyer, Manchester, N. H.  
M. L. Ward, Detroit, Mich.  
J. D. Wise, West Point, Miss.

This constitutes the clinic up to date. But three chairmen have reported from their States. There will be many more names to add to this programme when the rest of the reports reach me.

E. K. WEDELSTAEDT  
Chairman Clinic Section.

New York Life Bldg., St. Paul, Minn.  
May 30, 1907.

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### **Maine Dental Society.**

The forty-second annual meeting of the Maine Dental Society will be held at Rockland, Maine, July 16, 17 and 18, 1907.

H. A. KELLEY,  
Secretary Maine Dental Society.  
609 Congress Street, Portland, Me.

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### **Virginia State Dental Association.**

The Virginia State Dental Association will hold its annual meeting the 9th of September, 1907, at the Inside Inn, Jamestown Exposition. There will be only a short session, as the activities of our members are being merged with those of the Jamestown Dental Convention. This will be strictly a business meeting. No committees will be appointed, and no work done other than certain important matters of business which will be designated later in a circular letter to be issued to each member.

W. H. PEARSON, Asst. Cor. Secretary.

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### **Northeastern Dental Association.**

The thirteenth annual meeting of the Northeastern Dental Association will be held in the city of Portland, Me., at Hotel Lafayette, on October 16, 17 and 18, 1907. Preparations are being made for a valuable and instructive meeting.

EDGAR O. KINSMAN, D.M.D., Secretary.  
Cambridge, Mass.





## **French Congress of Stomatology.**

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A congress on stomatology styled the "First French Congress of Stomatology" will take place in Paris from the first to the fifth of August, 1907. The committee of organization is as follows: Honorary presidents, Drs. Galippe and Redier, at Lille; president, Dr. Cruet; vice-presidents, Drs. Claude Martin, of Lyons, and J. Ferrier; general secretary, Dr. Chompret; treasurer, Dr. Gires. The congress will be opened to all French and foreign doctors of medicine who are interested in dental and oral science. Subscriptions and communications should be addressed to the general secretary, Dr. J. Chompret, 182 rue de Rivoli, Paris, France.

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## **Los Angeles Association of Dental Alumni.**

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At a regular meeting of the Los Angeles Association of Dental Alumni, the following officers were elected: President, Wm. Bebb; Vice-President, Genette F. Harbour; Secretary, W. W. Holman; Treasurer, Chas. E. Rice.

The following committees were appointed:

Programme Committee—Jas. D. McCoy, J. F. Curran. Horace E. Brown.

Membership Committee—D. S. Gillespie, D. D. Cave, H. Gale Atwater.

Illegal Practitioners Committee—J. F. Cook, Bert Boyd, J. W. Neblett.

The association now has a membership of 168 with an average monthly attendance of 65.

W. W. HOMAN, Secretary.

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## **Vermont State Dental Society.**

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At the thirty-first annual meeting of the Vermont State Dental Society, held at Burlington, Vt., May 15, 16 and 17, 1907, the following



## SOCIETY ANNOUNCEMENTS

officers were elected for the ensuing year: President, C. H. Kent, Barre; first vice-president, Harry F. Hamilton, Newport; second vice-president, Charles F. Meacham, Bellows Falls; recording secretary, Thomas Mound, Rutland; corresponding secretary, Grace L. Bosworth, Rutland; treasurer, W. H. Munsell, Wells River. Executive committee, A. Z. Cutler, Bennington; P. M. Williams, Rutland; L. E. Mellen, Middlebury.

The next meeting will be held the third Wednesday in May, 1908, the place of meeting to be decided upon later.

THOMAS MOUND, Secretary.

Rutland, Vt.

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### **South Carolina State Dental Association.**

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The thirty-seventh annual convention of the South Carolina State Dental Association will be held in the city of Anderson, S. C., commencing July 2d, and continuing through the 3d, 4th and 5th. Special hotel rates have been secured, also one and one-third railroad rates on the certificate plan. We expect a glorious meeting, and all ethical practitioners are most cordially invited to attend.

E. N. KIBLER, Cor. Secretary.

Prosperity, S. C.

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### **North Dakota Dental Association.**

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At the annual meeting of the North Dakota Dental Association the following officers were elected: President, H. L. Starling; vice-president, T. G. Thompson; secretary, O. H. Sossaman; treasurer, S. Rowan.

The Association meets on the second Tuesday of May each year. Devils Lake was selected as the next meeting place.

O. H. SOSSAMAN, Secretary.





### **Southern Wisconsin Dental Association.**

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The officers elected for the ensuing year for the Southern Wisconsin Dental Association are as follows: President George C. Marlow; first vice-president, J. H. Reed; second vice-president, F. S. Knapp; secretary, C. W. Collver; treasurer, W. G. Hales.

The next place of meeting is Platteville.

C. W. COLLVER, Secretary.

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### **Connecticut State Dental Association.**

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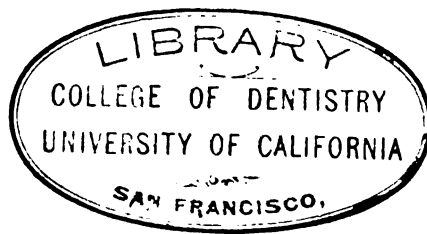
At the forty-third annual convention of the Connecticut State Dental Association, held at New London April 16 and 17, 1907, the following officers were elected: President, F. Hindsley, Bridgeport; vice-president, W. O. Beecher, Waterbury; secretary, E. S. Rosenbluth, Bridgeport; assistant secretary, A. E. Carey; treasurer, F. W. Brown, New Haven. Executive committee, J. W. Murless, Jr., Windsor Locks; F. J. Erbe, Waterbury; W. V. Lyon, Bridgeport.

E. S. ROSENBLUTH, Secretary.

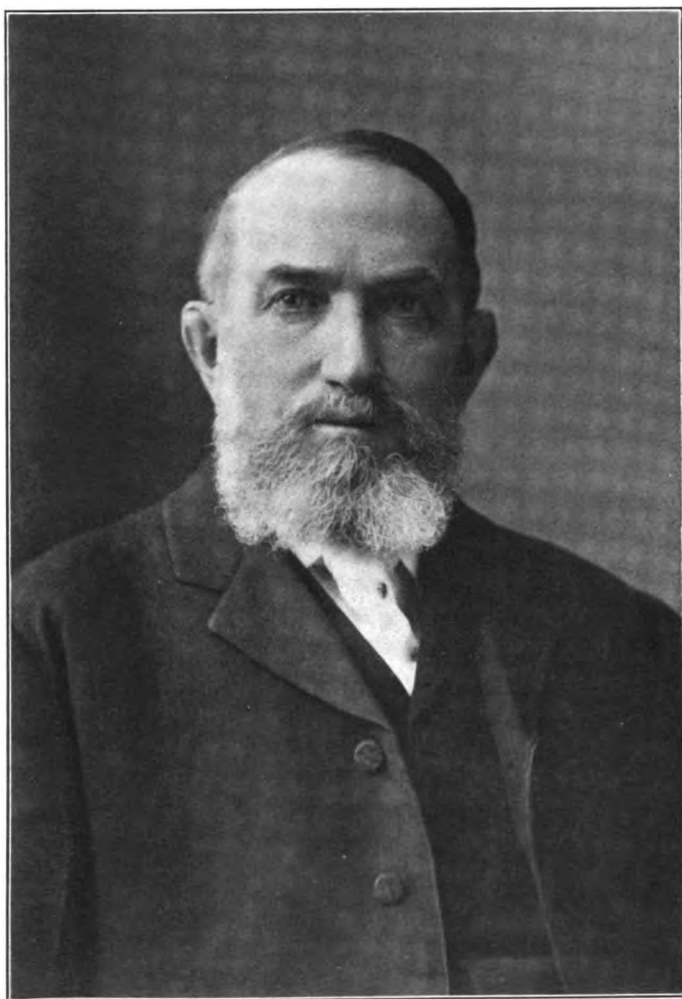
1051 Main St., Bridgeport, Conn.











J. BOND LITTIG, D.D.S.









JOHN I. HART, D.D.S.





## The Principles and Practice of Filling Teeth with Porcelain.\*

By DR. JOHN Q. BYRAM, Indianapolis, Ind.

### Cavities on the Labial and Buccal Surfaces of Teeth.

#### Forcing the Gum from the Cavity.

If the cavity extend beneath the gum margin, the gum should be forced from the cavity with base plate gutta percha. The gingival and approximal walls should be prepared with an inverted cone bur so that they form a slight undercut. The gutta percha should be packed in such manner that sufficient pressure to cause the gum to recede will be made upon it so that it will not interfere with the preparation of the gingival margin. In case it is inadvisable to form undercuts in any of the walls of the cavity, the gutta percha should be packed tightly into the cavity and secured with a silk ligature.

#### Marginal Outlines.

While cavities on the labial surfaces of many teeth are usually found in the gingival region, they occur also in the middle and incisal thirds of the labial surfaces of many teeth. Cavities on the labial and buccal surfaces of teeth usually assume some of the forms shown in Figs. 7 and 8. The circular form is usually found in the middle and incisal thirds of teeth. In the preparation of most cavities in the gingival region on these surfaces, the other forms of marginal outline should be used.

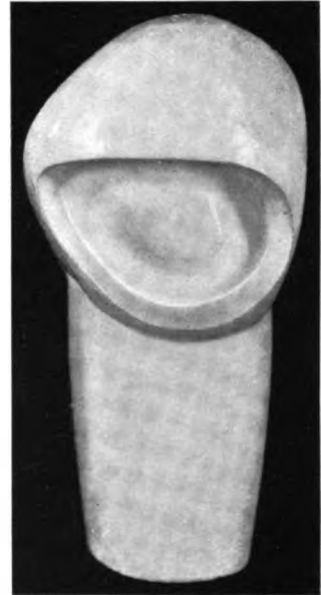
\*Copyright 1907, by Consolidated Dental Manufacturing Co.



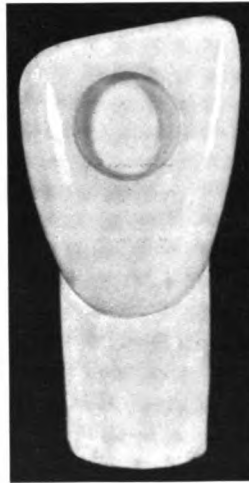
ITEMS OF INTEREST



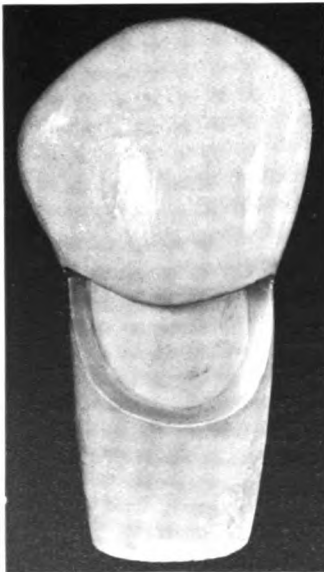
CUSPID.



CUSPID.



INCISOR.



BICUSPID.



BICUSPID.

FIG. 7.



All frail enamel should be removed and the walls should run at right angles to the curves of the segments of the circles formed on the surfaces (Fig. 9, A and B). This permits the walls to converge slightly

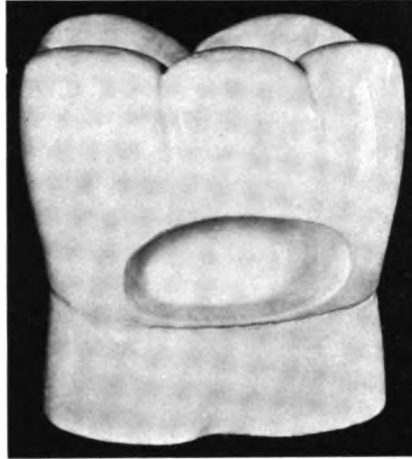


FIG. 8.

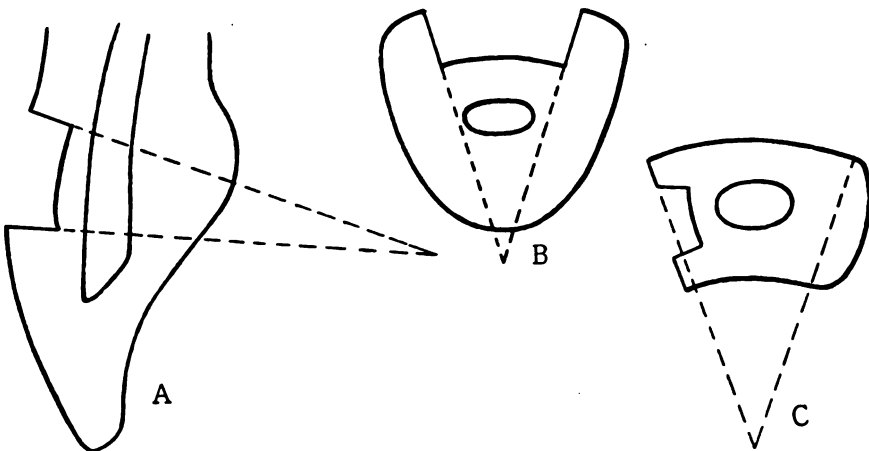


FIG. 9.

toward the pulpal wall (Figs. 10 and 11). This method of preparation gives a short bevel to the porcelain, which adds strength and causes it to be affected less by change of color along the margins after the inlay has been cemented into the cavity. These cavities should be as deep



## ITEMS OF INTEREST

as the pulp will permit; for as the depth of the cavity is increased, its retentive resistance is also increased, and the change in color of the porcelain, after it is cemented in place, is decreased. The pulpal wall and the plane of the surface on which the cavity is located should be parallel (Figs. 10 and 11, A). This method of preparation does not encroach upon the pulp as readily as one that requires that the pulpal wall should be flat. In case the cavity is almost circular or elliptical in outline, a pit should be drilled at some point in the pulpal wall (Fig. 12).

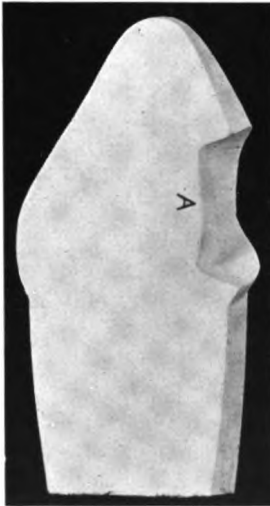


FIG. 10.

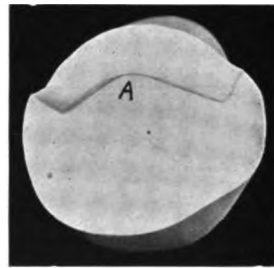


FIG. 11.

This insures a corresponding projection on the inlay, which assists the operator in setting it in proper relation to the cavity.

### **Technique of Cavity Preparation.**

These cavities should be prepared by the use of fine-cut burs and stones. The best burs for the preparation of cavities on the labial and buccal surfaces are cylindrical in form (Fig. 4). The face of the bur should be at a right angle to its axis. With burs of proper size the cavity is extended in all directions to obtain proper form and size, after which the margins should be polished with Arkansas stones.



### Simple Approximal Cavities in Incisors and Cuspids.

It is essential that teeth be properly wedged before the preparation of simple approximal and approximo-incisal cavities for inlays, to insure proper withdrawal of matrices or impressions of the cavities, for the insertion of the inlay, and that the inlay may have the proper contour. The method of cavity preparation controls, in a measure, the extent of space that is required. It will be found that those cavities in which no

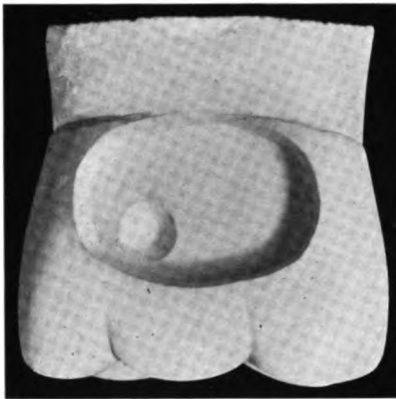


FIG. 12.



FIG. 13.

step is formed usually need more space than cavities with a step, for the withdrawal of matrices or impressions from such cavities.

Simple approximal cavities in incisors and cuspids may be divided into:

- (1) Cavities involving the approximal and labial surfaces (Fig. 13).
- (2) Cavities involving the approximal and lingual surfaces (Figs. 14 and 15).
- (3) Cavities involving the approximal and both labial and lingual surfaces (Figs. 16, 17 and 18).

#### **Cavities Involving Approximal and Labial Surfaces.**

In cavities involving the approximal and labial surfaces the gingival wall should extend rootward far enough to reach sound dentine. It should form an obtuse angle with the lingual wall, and should unite with the labial enamel wall in the form of a



curve that should be concave mesio-distally. The labial enamel wall may extend farther laterally than the pulpal, and its margin should form a curve. The lingual wall should be a strong plate of enamel and should run at right angle to the pulpal wall (Fig. 13). The pulpal wall should extend from the gingival to the incisal wall in such relation that no undercuts will be formed. The incisal wall should form an obtuse angle with pulpal wall, and it should unite with the lingual wall so that the same kind of an angle will be formed. This permits the gingival and incisal walls to diverge slightly toward the labial surface.



FIG. 14.

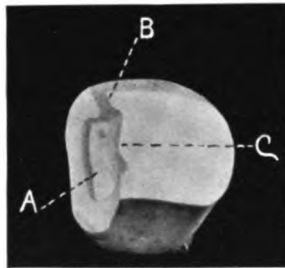


FIG. 16.



FIG. 15.

## **Cavities Involving Approximal and Lingual Surfaces.**

In cavities involving the approximal and lingual surfaces, this method of cavity preparation should be used in those cases in which the labial wall of enamel is retained to support the incisal wall. In many cases the incisal wall of enamel can be retained with safety, where it receives the support of the labial plate of enamel. On the other hand, if the labial plate were involved it would also require the incisal angle to be involved.

The gingival wall should extend rootward far enough to insure a strong mass of porcelain on the lingual surface, and its margin should form a curve (Fig. 14). A groove may be formed, from one to three millimeters deep, which should unite with the labial and lingual walls in a curve so that no undercuts are formed with these walls, because such undercuts would interfere with the withdrawal of the matrix. The



lingual enamel wall should be in the form of a curve and should be so prepared that it will give the strongest possible support to the incisal wall. The pulpal wall should be formed in such manner that it will not interfere with the withdrawal of the matrix. The incisal wall should be a continuation of the lingual enamel wall. It should unite with the labial wall so as to form an obtuse angle.

A step may be cut on the lingual surface in the gingival and middle thirds (Fig. 15). This should extend laterally far enough to give the required retentive resistance to the inlay. The lingual enamel wall of the step should have a curved outline, and its pulpal wall should form a right angle with the pulpal wall of the cavity.

In cavities involving both labial and lingual surfaces, after frail walls of enamel have been removed and the margins have been extended to the desired outline, all decay should be removed and the cavity given such form as is required for the retention of the filling.

**Cavities Involving  
both Labial and  
Lingual Surfaces.**

The gingival wall should extend rootward sufficiently to carry the margin of the inlay either to or beneath the gum margin. It should be at a right angle to the pulpal wall and should have a shallow groove running labio-lingually as far as it may be extended without interfering with the withdrawal of the matrix (Fig. 16 A).

The labial wall should extend gingivo-incisally in the form of a curve. It should be prepared so that its margin runs at a right angle to the segment formed by the curve of the labial surface. (Figs. 9 C and 16 B). It would also form an obtuse angle with the pulpal wall.

The lingual wall should be cut freely to avoid any frail enamel. It should extend from the gingival to the incisal wall in the form of a curve. The plane of the curve should be parallel to that of the labial wall (Fig. 18). Enough of this wall should be removed in the gingival third to insure a strong mass of porcelain in this region.

The incisal wall should form an obtuse angle with the pulpal wall. It should extend far enough from the incisal edge to provide a strong wall of enamel.

The pulpal wall should be convex labio-lingually through the gingival and middle thirds of the tooth (Fig. 16 C). It would join the labial, lingual and gingival walls in the form of a curve instead of sharp angles.

The cavity should be triangular in shape, with the base of the triangle toward the gingival wall, being formed between the labial and



## ITEMS OF INTEREST

lingual walls, which should be supported by dentine. It should be as deep as the pulp will permit. The final step in the preparation of the cavity should be the preparation of the margins. The enamel walls should be properly beveled and polished. Enough of the enamel should be removed in both the gingival and incisal thirds to prevent the formation of the frail margins of porcelain.



FIG. 17.



FIG. 18.

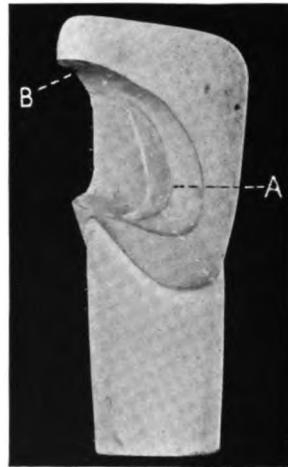


FIG. 19.

### **The Technique of Cavity Formation.**

After the frail enamel has been broken down with excavators or chisels, a fine-cut fissure bur of suitable diameter is used to prepare the labial and lingual margins. After the preparation of the margins the triangular cavity is cut between the enamel walls with a hoe excavator, the blade of which runs at a right angle to the axis of the shank (Fig. 6 B). The blade should be short and sharpened on both sides and the edge. This permits the cutting of the dentine along the walls of the cavity. The incisal wall of the cavity should be prepared with a small bur of such shape that it will form an obtuse angle with the pulpal wall. The margins should be polished with plug-finishing burs or Arkansas stone.

Fig. 18 shows a form of cavity preparation similar to Fig. 17, except that it extends farther toward the incisal edge. This form of preparation should only be used in those cases where the tooth is slightly rotated in such direction that no stress will be applied to the incisal angle.



## EXCLUSIVE CONTRIBUTIONS

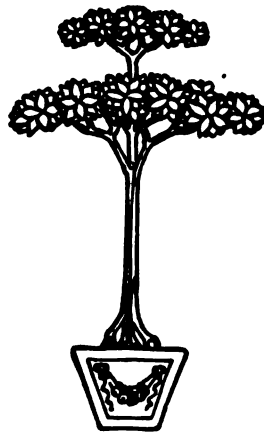
### Simple Approximal Cavities with a Step.

Occasionally a step may be used in simple approximal cavities. The labial outline of the cavity should have the same form as that previously described. The gingival wall, however, should extend from the labial wall through to the lingual surface, and the pulpal wall should be prepared the same as in Fig. 15.

A step should be cut on the lingual surface extending through the gingival and middle thirds of the tooth (Fig. 19). The lateral extent of this step is determined by the degree of stress to which the tooth is subject. It should be as deep as the pulp will permit. The pulpal wall of the step should form a right angle with the pulpal wall of the cavity. Care should be exercised to prevent the step from extending too near the incisal edge.

### Technique of Preparing the Step.

The enamel should be removed laterally from the gingival to the incisal wall with a dentate fissure bur and small stones in the right angle. After this has been done, a fissure bur with face at a right angle with its axis should be used to deepen the cavity. Enough of the gingival should be involved to prevent frail margins of porcelain in this region. The margins should be finished with properly shaped plug-finishing burs or Arkansas stones. A slight groove should extend along the angle of the pulpal and lateral wall of the step in the gingivo-incisal direction (Fig. 19 A). The cavity should be so prepared that the distance from the gingival to the incisal margin on the lingual surface is greater than this distance on the labial surface (Fig. 19 B).







## Report of a Case of Small Spindle Cell Sarcoma of the Jaw.\*

By WILLIAM T. S. DODDS, M.D.,

*Professor of Bacteriology, Indiana Dental College; Lecturer on Clinical Pathology and Medicine, and Director of Clinical Pathological Laboratory, Indiana Medical College, Purdue School of Medicine.*

Mrs. W——, aged twenty, of Indianapolis, presented herself at my office in August, 1906, complaining of a swelling and inflammation in the lower jaw on the left side. This swelling had existed for some six weeks, and had its origin, according to the patient, in the third molar, which could not erupt because of insufficient room in the angle of the jaw according to her dentist.

The family history of the patient was bad, her father and mother both being confirmed alcoholics, and probably other dissipations and depravities existing which may have had some influence upon the physical condition of the patient. This history was obtained in an indefinite way, because the girl had been separated from her parents early in childhood by the humane society and placed in the home for girls.

**Personal History.** The patient had not been ill, and was in a strong, robust physical condition, with every appearance of perfect health. She had no blemishes nor marks of hereditary disease evident upon her at any time. She had had the usual diseases of childhood from which she had made good recoveries.

**The Present Illness.** The present illness began early in July, 1906, with a slight swelling at the angle of the jaw, accompanied by an attempt of the third molar to appear. This persisted for some two or three weeks, when she consulted with a dentist, who advised her that the space between the second molar and the angle of the jaw was insufficient to permit the eruption of the third molar. He advised her to have the second molar removed, which would then give space for the eruption of the third molar. This was done, without any relief of the swelling or disturbance of the local area. Soon after the withdrawal of the second molar she consulted me, and I sent her to another dentist, because the conditions present seemed to be purely in the field of dentistry. This dentist, upon examination, found that the alveolar process surrounding the third molar was necrosed and granulating tissue and pus formation evidently had dis-

\* This case was reported in January, 1907 before the Indianapolis Medical Society, by the author.



lodged the third molar from its process. This tooth was found floating in the loose tissue surrounding the angle of the jaw. In addition to this, he observed that the remaining molars and bicusps were diseased in practically the same manner as the third molar. After consultation he removed these in the hope of effecting a cure.

At this time the upper third molar and second molar began to ex-



FIG. 1.

PHOTOGRAPH OF THE CASE TAKEN 12 HOURS BEFORE DEATH.

The light spot showing in the center of the mouth is not the tongue. It is a portion of the tumor, which has filled the mouth and crowded the tongue backward into the throat.

hibit the same symptoms as those noted in the lower jaw, and these teeth were subsequently removed, which presented the real pathological conditions. During this time, which covered a period of two or three weeks, the tumor at the angle of the jaw continued to grow with a certain amount of infiltration of the cheek, tonsilar and peritonsilar areas, and the muscular fibrous tissue at the base of the tongue. The tumor had ceased to be painful after the removal of the lower third molar, and now interfered with the patient only in the operation of mastication.

At this time the tumor had progressed to such a size that the encroachment upon the tongue and the protrusion between the jaws into



## ITEMS OF INTEREST

the mouth had caused some considerable annoyance, and it was decided to remove some portions of these and establish drainage, because considerable pus and sloughing had taken place. The odor from the secretion was excessively foul, and the discharges were of a prune juice character. Persistent, effectual antiseptic douching of the mouth with proper medication failed to retard or relieve the condition, and a surgical operation was deemed advisable.

### **Surgical Treatment.**

Dr. E. D. Clark was called in consultation, and we opened what we supposed to be an extensive abscess along the angle and lower quarter of the left jaw. This was without avail, because, in the place of an extensive abscess formation we found only succulent tissue very extensively supplied with blood vessels. No abscess; no pus could be found anywhere along the angle of the jaw, and the only result obtained at this time was temporary relief from pressure. In two or three days we sent the patient to St. Vincent's Hospital, where an operation was performed which included curretment of the antrum of Highmore of the cheek and lower jaw, peritonsillar tissue and tongue. At this time sections of the tissue were obtained and microscopically examined, demonstrating the presence of a malignant growth. The first tissue obtained was more particularly that of a necrotic character, without any general cellular structure, and we concluded that we had to deal with a cancrum orum, and so informed our patient. This curretment resulted in a great amelioration of the patient's symptoms, and conditions approached those of normal with regard to temperature, pulse and general expression of the symptoms. We expected to see conditions greatly improved and our patient get well. This, however, was soon found impossible because of the rapid recurrence of the growth along the entire line of operative procedure, with apparently more violence and rapidity than before. Another thing became apparent with the recurrence of this growth, and that was a change in the appearance of the tumor formation. Heretofore the mass was made up of a soft, succulent material resembling an abscess, but this time the tissue was firm, hard and indurated.

Sections of this recurrent mass were obtained and microscopical examinations proved them to be composed of a small spindle cell sarcoma which was greatly infected.

At this time a great abscess developed between the cheek proper and this tumor which endangered the life of the patient from sepsis. Evacuation of the abscess was followed by a prompt improvement in the patient's condition. After this, no sepsis appeared, and no great quantity of pus was evident during the remaining time.



**Pathology of  
Mouth Tumors.**

A few words with regard to the pathology of this tumor formation upon the jaw, the result of irritation of diseased teeth, or constantly irritating substance in the alveolar process. Early pathologists classified this epulis as *recurrent fibromata* without any particular reference to malignancy. Pathologists recognize, at the present time, that these epulæ are of benign and malignant nature. The malignant epulæ should be classed with the sarcomata and not in a distinct classification by themselves.

This tumor presented the characteristic grayish white fibrilated surface when examined in section, which is characteristic of the sarcoma. The malignant epulæ are more vascular and more succulent than are sarcoma. These large, irregular shaped cells which make up the tumor formation in epulis are probably the cells which compose the capillaries and blood vessels proliferating this fibrous structure. The tissue in epulis is not so distinctly embryonic as that of sarcoma. A glance at the sections which accompany this report will immediately classify this tumor as a spindle cell sarcoma. More questions might be raised with regard to the number of round cells, and an objection as to the clear classification with the spindle cell varieties. It is difficult to say whether or not these are round cells or only cross sections of the spindle cells which would give the appearance of a mixed cell sarcoma. Indeed, the classification with regard to the shape of the cells is more or less arbitrary and not much importance is attached thereto.

**Early Diagnosis  
Important.**

This case proves the observation, which is frequently noted, that dentists, as a rule, do not appreciate the different varieties of tumor formations in the mouth from the gross appearance of the tumor in its incipency. It is of great importance, in this class of tumors particularly, that the differentiation should be made early in the disease. Of course, numerous cases are seen by dentists of certain peculiar tumor formations in the mouth which are the result purely of inflammation, and rapidly succumb to the ordinary dental manipulations. This may be one reason for the apparent ignorance with regard to the gross appearance of tumors situated in the mouth.

A malignant tumor in its incipency is practically always devoid of inflammation and of inflammatory products. An ordinary tumor, the result of an abscess at the root of the tooth, or the result of some infection of the teeth, is always accompanied by pain, swelling and inflammation. This, of course, differentiates grossly a benign from a malignant tumor. However, there are certain benign tumors which appear in the mouth that never assume a malignant state, and could not be differ-



## ITEMS OF INTEREST

entiated by this method, but such tumors do not grow rapidly and do not encroach upon, nor grow into other tissue than that from which they spring.

A tumor situated in the mouth, or more particularly in the gum, alveolar process, or jaw bones, which is not painful, is not accompanied by inflammation, and which grows rapidly, should be observed with the utmost suspicion because such tumors are, as a rule, malignant. The

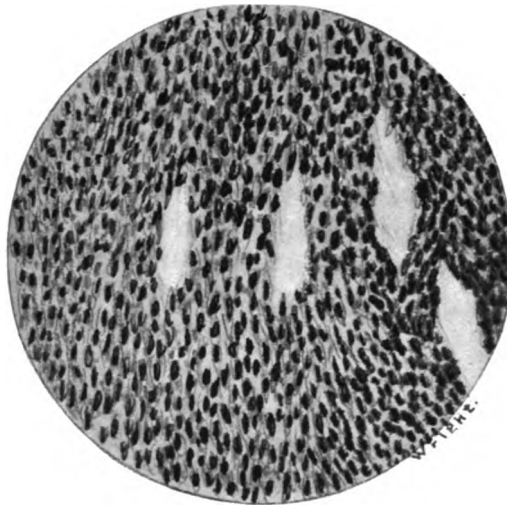


FIG. 2.

2, objective showing richness of cells and small amount of connective tissue.

irritation which may accompany the eruption of a tooth, causes a swelling and inflammation which is uniform and regular, while the swelling of tumor formation, the result of a malignant growth, is, as a rule, not so regular and uniform, but appears nodular and infiltrating.

Another gross appearance with regard to tumor formations, due to sepsis, is that almost immediately upon the development of such a tumor formation, we have a secondary inflammation of the submaxillary glands, and the glandular structure around the base of the tongue, and down the cervical lymphatics. In the sarcomas we do not have such glandular inflammation early, and when this inflammation takes place it is a long time after the real nature of the process becomes apparent to the casual observer. To be sure, it often requires a microscopic examination of the tissue to demonstrate its true nature, but this should not be withheld



until the patient's life is in danger by the rapid encroachment of the malignant growth upon the surrounding organs.

The prevalence with which sarcoma springs from the periosteum of the alveolar process and the surrounding connective tissue should stimulate the dentist to be extremely suspicious of any tumors discovered in the mouth, where pus can not be accurately and absolutely demonstrated. Especially should their suspicions be aroused if the tumor manifests in this area without pain, without inflammation, and particularly without fever; because no tumor formation, the result of sepsis, will exist long

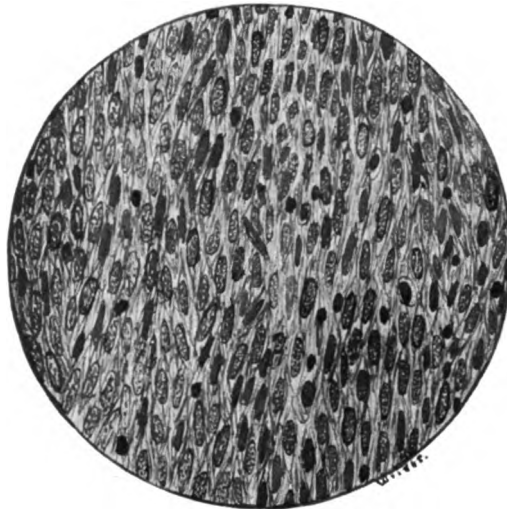


FIG. 3.  
 $\frac{1}{4}$  objective. Same as Fig. 2.

in the mouth without some manifestation, as above described. The duty of the dentist, in such cases as this, is to obtain sections of the tissue for microscopical diagnosis and demonstrate beyond any reasonable doubt the existence of the condition before any chances are taken with the patient.

The girl's life might have been saved had the tumor been recognized as a malignant growth early in July, and not have been permitted to develop into such a horrible, disfiguring, mutilating, fatal affair.

The photograph which accompanies this article was taken twelve hours before the patient died from hemorrhage, hemorrhage being due



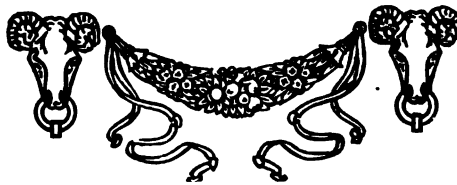
## ITEMS OF INTEREST

to a sloughing of the tumor in the region of the carotid arteries. In conclusion, I would call your attention to three points in differential diagnosis.

First. That any tumor which presents itself in the mouth, of rapid growth, being devoid of inflammation, pain and pus, should be immediately examined under the microscope to determine its nature.

Second. If the tumor is demonstrated to be malignant, it should be removed by radical surgical operation, thereby curing the patient and saving discredit upon the dental and medical profession.

Third. That sarcoma and epulæ should be classified under the same category of tumor formations, as a rule.







## **American Society of Orthodontists.**

### **Discussion of Dr. Reoch's Paper.**

**Dr. Stanley.**

Dr. Reoch has said that it often happens that scientific minds, working independently of each other, may simultaneously startle the world with some great discovery. Indeed, this so often happens that the man is exceptional who can lay sole claim to any great thought or invention. The spirit of discovery is inherent in man's nature. It goes hand in hand with progress, and as man's needs increase it keeps pace. What wonder is it then that two men, with a common interest in solving complicated problems, should arrive at the same conclusions, at about the same time, and without any previous exchange of ideas.

There is a time and a place for "priority." By that I mean that in the discussion of scientific facts, before a scientific body, the tendency is too often to center the discussion upon the question of who is entitled to first mention in the discovery of a great truth, while the application of that truth, and its result upon those benefited by it is overshadowed, or entirely lost.

Dr. Reoch has alluded, fittingly and becomingly, to the origin of the intermaxillary force in the opening of his essay, and then followed with examples of the application of this indispensable force in the treatment of malocclusion. He has with truth said that this great discovery is burying the "extractionists" deep under the sod. The few remaining believers in mutilated dentures as a cure for certain existing evils are dying hard. But I believe even these few now show signs of weakening.



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Dr. Reoch is most generous to this handful of exponents of false doctrine. He grants that extraction may sometimes be necessary, yet he states that he has not found it necessary in his experience, nor have I in mine; and I venture to say that the majority of those present—yes, I dare say all—will echo his words.

Intermaxillary force, in its usual form of application, is the key-stone of the arch of modern orthodontia. Without it the whole structure would fall.

We may differ in our conception of perfect balance, or harmony of facial lines, but the differences lend no excuse for the extraction of teeth in the treatment of malocclusion. The *intelligent* use of the intermaxillary force can only produce the *best* result in any given case, while so-called "judicious" extraction has but one result—creating one deformity to balance another.

Dr. Reoch has shown a number of uses to which the simple elastic can be put. Practical cases teach us more than volumes of theory. We have received a number of sound practical suggestions which can not fail to be of use to us.

Undoubtedly more can be accomplished with this form of intermaxillary force (the elastic band) than any of the others mentioned. The inclined plane as used by Dr. Ainsworth has its place, though necessarily it can not supplant the elastic band stretched from one arch to the other.

I would like to discuss certain features of each case shown on the screen, but I fear it would consume too much time. One point, however, which one of the slides brought to my mind is of special interest. Dr. Reoch showed his method of quickly aligning buccally displaced molars. It seems to me that the application of the elastics from molar to molar as he described would be of great assistance to us in those cases where the lower molars are unduly inclined lingually, where it seems almost impossible to move them. I think we could apply the elastics as an auxillary to the expansion arch. The tendency would be to draw the upper molars lingually. This can be overcome by re-enforcing the upper molar anchor teeth in any way that is practical.

In correcting mesio-distal malocclusion I think we get a better result in the end by the gradual application of the elastic force. In retention I find the light elastic very satisfactory when worn at night, after the mesio-distal relation has been corrected, and if there is any tendency for the teeth to slip, have them worn through the day as well.

The case Dr. Reoch showed of a young lady, where the chin had gone to the left, I happened to see last spring as she hurriedly passed through New York. She came in for a few minutes. The inclination



## ORTHODONTIA

of the chin is almost absent now. The case was so very much improved that I felt highly gratified at Dr. Roech's result.

Mr. President, I thank you for inviting me to **Dr. Henry H. Baker.** discuss this paper. I also wish to thank Dr. Roech for the compliments which he paid me in relation to the intermaxillary elastics. I do not know that I can say anything in regard to their merits that you do not already know; however, it may be interesting to you to know the history of their introduction.

Soon after the birth of my youngest son, his mother was taken very ill. As a result we were obliged to feed him by means of a nursing bottle. As time went on to our surprise and horror we found the pressure of the rubber nipple, slight as it was, had created a decided deformity in his delicate jaws, and when his permanent teeth erupted the result was a very aggravated case of what Angle classifies as distal occlusion.

I prepared models and studied the case carefully. My conclusions were that if I reduced his protruding upper teeth the lower jaw would still occlude distally, and to get normal occlusion it would be necessary to bring the lower jaw forward. Then the question arose as to how this could be accomplished. The intermaxillary elastic was the result. I decided that the best time to commence operation would be just before the eruption of the lower twelfth year molars, so that after they erupted they would assist in holding the remainder of the lower teeth in their new position. After laying out my line of treatment and deciding the best time to accomplish the same, I exhibited my models before the "American Academy of Dental Science" and outlined my proposed treatment.

This case was corrected in two months' time, and no other force was used than the intermaxillary elastics; that is to say, the teeth were brought into normal relations and allowed to settle into better occlusion before putting on retainers.

The probable cause of this rapid change was the use of much heavier elastics than we use to-day. I used them double, hooking them over the tubes of the lower anchor bands, in the same manner as is used to-day, then stretching them forward and tying them to the upper arch wire just in front of the upper cuspids with silk ligatures. It being my son's case, unfortunately I made no record in my book, but as I have said before, I commenced operations before the eruption of the lower twelfth year molars, and my son will be twenty-six years old his next birthday, which to my mind is an authentic record. Many years after the correction of this case Dr. Case wrote to me claiming priority of intermaxillary elastics. He also sent me publications wherever he had men-



## ITEMS OF INTEREST

tioned them, and his records would indicate that he made no great account of them except as an auxillary force to other methods. I do not care to go into a deep discussion on this point, as the profession knows very well my connection with intermaxillary elastics and what they will accomplish. I have received some very kind letters from Dr. Angle and others in the profession who have used them successfully in a great many cases, and I would also say that Dr. Angle has added greatly to their efficiency by attaching a hook to the upper arched wire, which enables the patient to apply them without the aid of the operator, and I give him great credit for the improvement. There is one more thing I wish to mention in regard to Dr. Reoch's paper, that is in relation to the last illustration that he exhibited, showing a case of prognathism. Some three or four years ago I advanced the theory that this was caused by habit, especially where there was a loss of several teeth in the molar region. My idea is that, being unable to masticate in the back part of the mouth, patients are obliged to use their front teeth, and as a result get into the habit of reaching forward, their lower front teeth tipping back to a marked degree. Everything that I have been able to learn corroborates my theory, and I ask you, gentlemen, to bear this in mind and get as much of a history of similar cases as possible. If we can establish the fact beyond a question it will be still another factor as an argument against promiscuous extraction.

Just one word. I have an idea which I have  
**Dr. Hawley.** not fully tried, but which I believe to be a good one.

We all know, who have treated cases of the First Division of Class II, that there is a large overbite which is difficult to take care of. Dr. Reoch has thrown on the screen an illustration of the application of the intermaxillary bands, in an attempt to correct that overbite. I saw during the last summer the same plan worked out very beautifully, but undertaken in the beginning of the operation. Dr. McBride, of Dresden, in treating these cases, instead of putting the intermaxillary ligatures from the sheath hook back to the molar band, uses two, one going over the upper molar tube.

While I was visiting him this summer we improved that by putting a little spur on the mesial end of the tube on the upper molar band so as to carry the pull a little further forward. In this commencement of the forward movement of the lower jaw he starts to correct the overbite. That has been a valuable suggestion to me, and I look forward to a little quicker and a little better result in these cases in the future. That pull of the ligatures will also correct, or prevent, the outward tipping of the cusps of the superior molars. Instead of waiting until the closing of the case they should be started at practically the beginning of the work.



## ORTHODONTIA

**Dr. Casto.** Dr. Reoch has given us an excellent paper, and I wish to thank him personally for it; also to express my appreciation for the great amount of work he has done in its preparation.

The essayist referred to some cases of Class II that I have been treating by using the intermaxillary rubbers on individual teeth in connection with an inclined plane. I do this for the purpose of shifting the occlusion, lengthening the bite and depressing the lower incisors. I have employed this method successfully in those cases of Class II where the lower incisors strike against the soft tissues lingually to the upper incisors, and where it is necessary to lengthen the bite, after shifting the occlusion so as to prevent the lower incisors from occluding too heavily upon the upper incisors.

Dr. Reoch, in describing the method, spoke only of using a bite-plate with an inclined plane on it and wires bent over the incisal edges of the upper centrals. This form of plate is a modification of the old Kingsley bite-plate, and was first used, I believe, by Dr. Angle. The wires passing over the edges of the incisors serve the double purpose of preventing the labial movement of the incisors and to prevent the plate from being forced into the soft tissues. The intermaxillary rubbers on the individual teeth may be used for the same purpose in connection with any form of an inclined plane. It makes no difference whether it be a plate or an incline after the fashion of the Davenport or Ainsworth pattern. The essential thing is to keep the force of occlusion upon the teeth to be depressed, and freeing those teeth to be elongated.

In cases where it is desired to increase the depressing force upon the lower incisors, and the elevating force upon the bicuspid, I have used in connection the method suggested by Dr. Case, namely: Bands are placed on the incisors with lugs pointing incisally. The lugs or hooks in the bicuspid bands which point lingually are made larger so as to engage the wire spring and allow also of rubbers being placed on them. Bands are placed either on the first or second molars, as the case may require, with hooks pointing occlusally; a spring wire is then fitted around the arch, being adjusted so as to engage over the hooks on the molars, under the hooks on the bicuspid, and over the hooks on the incisors.

Dr. Hawley spoke of using the elastics on individual teeth at the beginning of a case, for the purpose of elongating the molars, and at the same time shifting the occlusion. That may be done provided there is a harmony in the size of the arches when the lower is set forward. But where there is practically no harmony in size or occlusion with the upper arch, some previous treatment is required. This must be done to estab-



## ITEMS OF INTEREST

Then a proper aid to accommodate the occlusion when shifted. The elastics may be used on individual teeth for retention for a limited time in ordinary cases of Class II. In such retention, they may be used either with or without an inclined plane. They may also be used advantageously in any case where it is desired to draw the teeth into an interdigitation.

Sometimes after the occlusion has been shifted a space remains between the upper cuspids and bicuspid; or the cuspids may not be fully erupted and located slightly mesially to normal. In such cases the elastic may be used to a decided advantage. This is done by placing bands on the cuspids and lower first bicuspid and then engaging the elastics over the hooks on the cuspids and under the hooks on the bicuspid, or the elastics may be extended from the cuspids to the lower first molars, depending upon the requirements of the case. There are many other conditions where the intermaxillary force can be used to advantage.

Yesterday, Dr. Rogers made some reference to the use of an inclined plane, made by adding another cusp on the lower first bicuspid.

I wish to say that at the Chicago meeting, more than a year ago, Dr. Robert Dunn, of San Francisco, gave a clinic on that very thing. I have used it effectively. I have also put an inclined plane on the lower second bicuspid, allowing the incline to strike mesially to the lingual cusp of the upper second bicuspid.

The inclined planes used on individual teeth in connection with the intermaxillary elastics are valuable in retention, where it is necessary to change the position of the teeth slightly in a mesial or distal direction.

So far as I know, the credit for the additional cusp is due to Dr. Lourie. I think he showed it at the Philadelphia meeting of the American Society of Orthodontists. It is not a little amusing to me to notice these Angle students taking up some of these appliances and things which have been relegated to the past, such as "inclined planes," "special appliances," etc. It is a pretty good sign, and means that broader thought prevails.

I put a big question mark after the statement that the intermaxillary rubber ligatures are effective for retention. What are you doing while holding those rubbers on the teeth? You certainly will not expect a stationary retention or even rest. It is a serious question, and that kind of anchorage is a confession of a failure in retention and regulation.

Another point. Dr. Casto has spoken well with reference to harmonizing of the arches before swinging the mandible forward. I have had some success with inclined planes soldered to the lingual of a Case retainer. They should be used after the teeth are put in harmonious



relations in each jaw, and then they will aid in producing the relation of the jaws. In many of these cases of distal occlusion we will not succeed in retention.

I noticed in one of Dr. Reoch's illustrations a *space distal to the cuspid tooth*. That is a *diagnostic sign* that the upper molars and bicuspids have been *moved too far distally*. In most of those cases the lower jaw is too far back, and in trying to compromise you will move the side teeth too far and cause this space and fail in trying to force the incisors and cuspids back. I believe the intermaxillary force should be an auxillary force only.

**Dr. Reoch.**

In showing the slides I forgot one. It shows a method of applying intermaxillary force that Dr. Rogers has used to advantage. A hook is soft soldered to the end of the upper or lower arch, as the case requires, and so arranged that all the pull of the rubber ligature is transmitted by this hook to the arch, in this way forcing the teeth ligated to the arch mesial to the anchor tooth, in a mesial direction, without a stress upon the primary anchor tooth. It is a method that can be employed to great advantage in certain types of cases.

I wish to thank you for your kind attention and consideration of this paper.

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### **An Appliance for Expanding the Dental Arches, Thereby Increasing the Size of the Nasal Passages and Superjacent Bones.**

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Dr. E. A. BOGUE, New York.

*Read before the American Society of Orthodontists.*

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I wish to express my regrets now that this Society of Orthodontists was not formed when I was a child, because my incisor teeth shut end to end, and I can not therefore enunciate certain words correctly.

I started last July to write a paper controversial to my friend Dr. Angle, hoping he would be here. When I found he would not be here I hitched it on to a few disjointed items, which I hope you will excuse in lieu of a paper.

In the ITEMS OF INTEREST for June, 1906, I read in a recent paper of Dr. Angle's that "the deciduous teeth almost always erupt into ideal normal occlusion, and the child denture is not only perfect in form in part



## ITEMS OF INTEREST

and in whole, but in location with the rest of the face and head, so that there is beauty, harmony and the highest efficiency . . . so, when the first molars erupt they do so under the most favorable conditions, unhampered by predecessors or by those teeth anterior or posterior to them, the jaws having been lengthening for years for their coming, and instead of being in any way hindered in their eruption they are, on the contrary, *guided into* and *guarded in* normal positions by the beautiful normally built child denture anterior to them."

Dr. William J. Brady, of Iowa City, in discussing Dr. Angle's paper says: "The action of heredity is the chief, if not the only controlling force that settles the position of the teeth named, and they are so placed that when they erupt they have only to emerge through the tissues covering them when they are in their correct places. This is why the temporary teeth are always practically regular, which fact is one of the best established in relation to teeth."

Dr. Fletcher, of Cincinnati (quoting Talbot on irregularities of the teeth), says: "The deformity always commences at the sixth year and is complete at the twelfth."

Either I have misunderstood or all these gentlemen are mistaken. I present for your consideration a number of cases of deciduous teeth taken from among my own models, the cases occurring in my own practice or in that of my son, all showing distinct irregularities in the positions of the temporary teeth, and several of them showing such extensive irregularities that if the contention of Dr. Angle is correct, and I believe it is, that the first permanent molars are guided into their places by the child denture anterior to them, then the first molars can not possibly be in normal position.

If the first molars were guided into correct articulation there would be no cases in adolescent life of dislocation or malposition, either unilateral or bilateral, to call for the reciprocal force, which has proven so efficient in correcting these oftentimes perplexing and troublesome irregularities. Irregularities arise very early in life, according to Dr. Fletcher's own suggestion; their cause may be antenatal, and certainly are if heredity plays the part that Mr. Burbank teaches us, and that Darwin originally propounded.

But I think that influences that come into operation *after* birth, and which we can understand much better than we understand heredity, are mainly responsible for determining the position of the teeth.

Close observation of minor deficiencies readily show that irregularities may be found among the temporary teeth about as often as among the permanent ones.



## ORTHODONTIA

### **Irregularity Prognosticated by Temporary Teeth.**

My own experience is that all serious irregularities of the permanent teeth are indicated by the positions of the deciduous teeth, and that at five years of age or earlier, one may detect these irregularities, and, in many instances, avert them by prompt action in encouraging normal development by the removal of some obstruction which nature, unaided, is not able to overcome.

I present to you the case of a little girl eight years old. I found both arches a little too narrow, according to the Hawley measurements. The lower incisors were posterior to normal. The right lateral was 3-16 of an inch posterior to the other three. Upon rearranging the teeth on a plaster model I found the central incisors needed to be advanced about an eighth of an inch; consequently, in order to make a perfect arch with the cuspids the whole lower dental arch needed to be broadened about 3-16 of an inch and the four lower incisors made into a perfect arch on those lines. I placed bands with vertical tubes around the second lower temporary molars, and an expansion arch engaging those tubes was placed on the buccal side of the dental arch. By utilizing the temporary teeth for purposes of regulation all injuries to the permanent teeth from fixtures are avoided. On the lingual side of these bands a wire soldered to each band acted upon the four adjoining teeth, drawing them simultaneously outward as the external wire arch expands. On the lingual side of the left lower molar band was also soldered a gold and platinum spring wire, which, having been bent to the form of the perfect arch, engages beneath a little spud attached to a band on the right lateral incisor, and will eventually, if kept in position, advance the right lateral incisor to its proper place in the arch as well as all the other three incisors, so soon as the arch shall have been broadened enough to receive them.

On the upper teeth bands were similarly placed upon the second temporary molars with lingual wires touching four teeth on each side, the same as below. Outside the dental arch was a wire expansion arch engaging in horizontal tubes attached by swivels to the upper molar bands. This arch has a thread cut on each of the ends for two nuts, the forward one designed to compress spiral springs surrounding the arch wire just forward of the horizontal tubes. The posterior nuts are designed to prevent the arch wire from drawing the incisors too far forward, and are also designed to prevent losing the fixture off. The two upper central incisors are surrounded by bands having a little spud on the lingual side to engage small ligature wires that bind the incisors to the arch wire. The resiliency of the spiral springs will carry these teeth forward until the movement is stopped by the posterior nuts. At the same time the wire expansion arch will draw the four molars on each



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FIGS. 1, 3 AND 5.

FIG. 2, 4 AND 6.



side outward to correspond with the outward movement taking place with the lower teeth, and as these temporary molars move laterally outward they carry with them the crowns of the permanent bicuspidis that are embraced by the roots of these temporary molars, thus broadening the entire upper arch. The plaster models of the case, taken after the fixtures were in place, explain perfectly the position of the fixtures, which should be maintained until the teeth are in position.

It will be noticed that the lower incisors and the upper central in that mouth, Fig. 1, and the entire upper arch, are much smaller than this other one, Fig. 2; the one is four years of age and the other five.

Fig. 4 is the same case—five years of age. The irregularity is readily seen. The lower molars are entirely outside the upper arch. The upper central incisor of Fig. 3, is within the lower arch. Adenoids were developed in Fig. 4 at six weeks of age. The mother found at that time that the child was sleeping with the mouth open, and on examination adenoids were found.

Fig. 5. This case was left open in order that the irregularities of the temporary teeth might be seen. Patient was four years of age. The other, Fig. 6, is five years of age, and bites end to end.

Fig. 7 was five or six years of age, and the entire lower arch closed outside the upper. The difference in size between the upper and lower you will note in the next.

Fig. 8 is the same case. The difficulties of correcting that particular case was augmented by the fact that the child lived in Paris.

Fig. 9 is seven years of age, and the adjoining one, Fig. 10, nine years old. Fig. 9 is the case I spoke of yesterday, where the model at seven was carefully measured—again at eight and ten, and our respected president, in measuring the last two, did not find any difference, although two years had elapsed.

Fig. 11 is an interloper, put in to show how the loss of a temporary tooth and the occurrence of a cavity of decay will cause the permanent tooth to bodily come forward, apices of roots and all. So there the principal molar actually occupies another position from the correct one, even though the anterior temporary teeth were in place. It is the most vivid instance of how the loss of a temporary tooth can result in the serious irregularity of the permanent teeth that I have come across in my researches.

Fig. 12 is the case I have been describing. The lower model was cut in two in the middle and broadened. The bands were placed upon the second temporary molars as described. The wires, both above and below, engaged with four teeth on each side, and the arch outside was

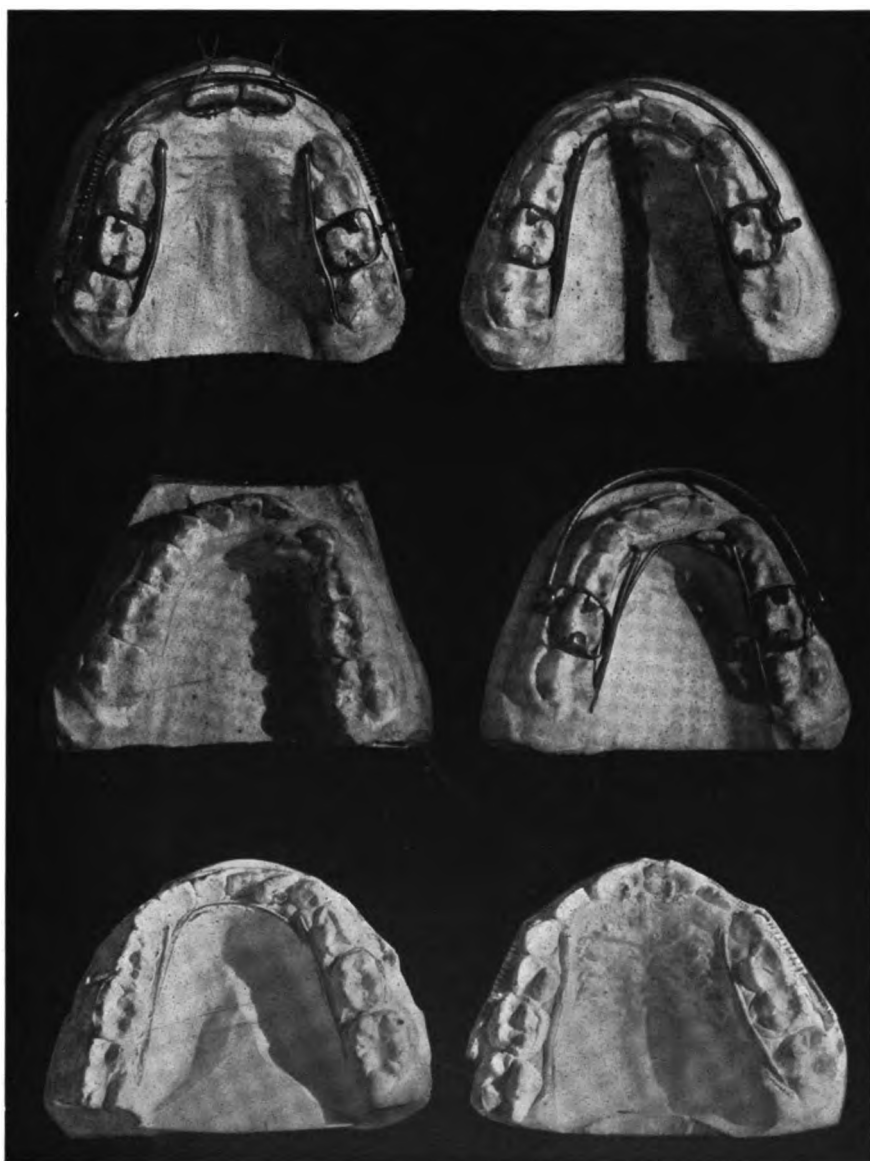




FIGS. 7, 9 AND 10.

FIGS 8 AND 11.





FIGS 12, 13 AND 14.



## ITEMS OF INTEREST

set to do the work which I have described. On the lingual side of these bands the wire acts on four teeth.

Fig. 13 is the lower arch. The right lateral incisor was away in, and back of it is the gold and platinum wire, which, when inserted runs away back to the left molar, but when it shall have done its work, that right end will come exactly to the point between the right lateral

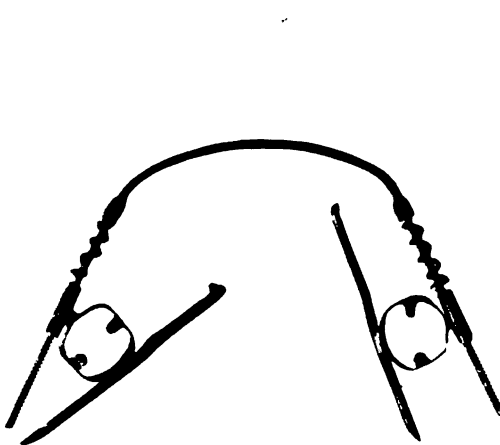


FIG. 15.

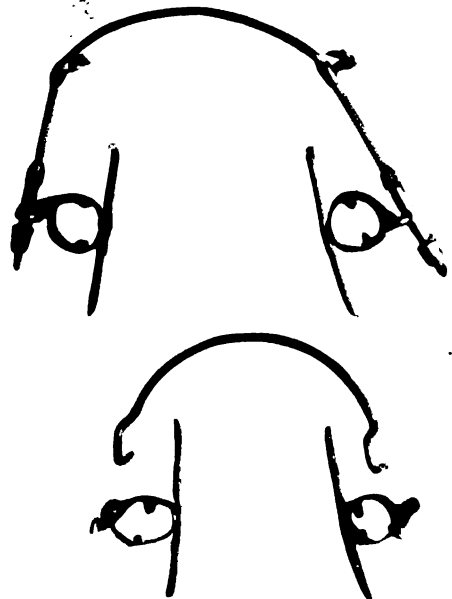


FIG. 16.

and cuspid when the teeth are all regular. Those fixtures were put in on the sixth day of July last. I have not yet seen the patient, but am hearing good reports from the parents. I wrote Dr. Angle and requested the name of a good orthodontist in the neighborhood. I sent the name of that orthodontist and received models.

Fig. 14 is the model as sent me. The upper arch has spread not quite a quarter of an inch, and I hope Dr. Hawley will give his views as to how nearly it corresponds with that arch of his. The lower arch has correspondingly expanded and the incisors have been pushed forward to the point you see, but the end of the gold and platinum finger spring wire was crowded down below the spurs on the incisor bands so the ends stuck out against the gums, and therefore the end of my finger wire was cut off, much to my regret. I was keeping this case for this



meeting, and I earnestly wanted to show it complete, showing what could be done by an apparatus designed on the model, where the regulation was done on the model, without ever touching it again. The arch wire, the Ainsworth wire, was taken off to be broadened about one-eighth inch in order to accomplish something that I desired. It was accidentally broken. The orthodontist did not telegraph me or I would have sent a duplicate. The bands on either side were taken off and an Angle fixture inserted. The parents wrote to know what to do. I said let it alone, I am familiar with the Angle fixture. It does good work, only it requires constant attention, whereas the fixtures I put in July 6th worked on until November 8th without any further attention.

Figs. 15 and 16 are the fixtures illustrated. Notice the drop hook, etc. Those hooks can be turned up when the child is eating, under the cheeks; then the child can turn them down again and hitch on the rubber.

### Discussion of Dr. Bogue's Paper.

While I believe that Dr. Angle has authority  
**Dr. J. Bond Littig.** for his assertion, if he takes up the text-books on the subject of orthodontia as published to-day—that the majority of temporary teeth erupt normally—I remember when I was a young man that Dr. Bogue read a paper before the Odontological Society, which was written by Dr. Davenport, stating that there should be no extraction of teeth for the purpose of “regulating,” as we used the term then. We were really anxious about Dr. Bogue at that time; we thought he was getting a little off his head, and so men brought models invariably, to prove that extraction of teeth was not detrimental to the shape of the arch and mastication. Dr. Bogue has kept at that all the time, until he is almost like Mrs. Eddy, with a congregation around him, and the people have come forth and said he is right. He was first to indicate to us that we must not extract; that there was something better. He tells us that the teeth of the infant or the teeth of the child of seven, of six or of three years of age, are often entirely irregular, and I rather think he is right. It is an awakening to me, because I have always taken up all these things, and all I have seen, with three exceptions, have appeared to be regular; but perhaps I did not go back far enough. He is one of these men that is always searching for something radical, and he comes out with it and I do not dispute it for fear I might be caught in the same trap as when I disputed him about the extraction of teeth. I am convinced I have extracted many teeth that should not have been removed. I was taught that way, and that is my only excuse. Facts are stubborn things, and when Dr. Bogue brings



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models and appliances you can see how ingenious he is. Not that he has invented appliances, but he has taken those from Ainsworth, Canning and others and has correlated those appliances to suit individual cases. Not many of us would have thought of it.

I have been much interested in this work Dr. **Dr. Hawley.** Bogue has been doing, and it is needless to say I have been much gratified by it.

In regard to the first part of the paper, from one standpoint of the proposition, that the temporary teeth guide the permanent ones into a perfect position, I think Dr. Angle was right. That is, in case the temporary teeth are normal, and none of them lost prematurely, and I do not question but that the first molar, in normal cases, is the most valuable landmark for classification in the mouth. But it seems to me that any man will notice that in a large number of cases the temporary teeth are not in normal position, and in those cases they do not guide the first molars into normal occlusion.

I think there can be no question but that there are large numbers of cases where the temporary teeth are not in normal occlusion. I have observed many myself, and Dr. Bogue has shown some on the screen. I have had two cases called to my attention since I have been in this city of complete distal occlusion in the deciduous teeth. In those cases the first molar will hardly be guided into its normal position.

Regarding the second part of the paper, I saw these appliances last July, and I must say that Dr. Bogue was attempting something I would not care to undertake myself. Last night I saw the models of this case and I am certainly astonished at the results that have been attained. The arch was bent with just about the right amount of spring, because in four months it has widened that arch just a little more than is necessary (if my charts are right), and that extra expansion is very vital considering the retention. I think if I had that arch under my constant control I should have exceeded the indicated width by just about the amount that he had done. I would compliment Dr. Bogue very highly because of the way in which he has adjusted those appliances. I think it is remarkable. He has opened a field of possibilities in managing such cases that I have not thought of, and I do not believe many of us have. This patient has been out of his control for four months, and yet the appliance has worked correctly. Only a little more attention to the lower arch was needed.

I can hardly express my gratification at the results that have been gained by Dr. Bogue.



## ORTHODONTIA

I had the courtesy shown me of being permitted to read Dr. Bogue's paper, and of also seeing the models and hearing him explain the working of his appliance. He has certainly given us a marvelous apparatus; especially marvelous for those cases where we can not see our patient two or three times a week, or even once a week.

I think the Doctor's criticism of Dr. Angle and Dr. Brady with reference to their position as to irregularities in the temporary teeth is well taken. Dr. Bogue, as you know, has been working along these lines for some time. He expressed his conviction over three years ago that certain irregularities were shown in the temporary teeth, and that operations on them should be started very early.

Last July I published an editorial criticism of Dr. Angle's statement with reference to the first permanent molars, saying "that they could not be the key to diagnosis when posterior to any irregularity of the temporary teeth." Later I had an article in December, 1906, *Dentist's Magazine*, covering irregularities of the temporary teeth, wherein I stated that all serious irregularities of the permanent teeth are foreshown in the temporary dentition. It is not a mere statement, but the results of the investigations of some years.

Dr. W. M. Dailey published a paper in 1905 indicating that he had observed the prevalence of irregularity in temporary teeth.

I am surprised to hear Dr. Hawley say that most of these irregularities are not shown in temporary teeth.

In the first class of Dr. Angle's classification there are 692 out of a thousand cases in which the irregularities in permanent teeth are anterior to the first permanent molars. Indications of those irregularities would show in the temporary teeth. If you do not believe it, watch the little patients. Ask the mothers to bring in the sisters and brothers of the patients under your care, see the babies soon after birth, and note the characteristic lip relations, etc. Get impressions from two years and ten months up, as I have done, and you will conclude as I have, that temporary irregularities precede those of the permanent.

I disagree with Dr. Bogue on one point. That is, we need not pay a great deal of attention to pre-natal conditions. This need not detract in any way from post-natal conditions. C. Stanley Hall, in his "Psychology of Adolescence," says: "One of the greatest causes of the decay of ethnic stock is loss of mammary function."

What did that mean? That child does not get enough nutrition, and does not develop thoroughly because the conditions are wrong with the mother. We must consider all these things. They are at the very foundation of our work. The irregularities are shown, as Dr. Bogue



## ITEMS OF INTEREST

has indicated, in the temporary teeth, and I am glad to be able to corroborate his statements and commend his excellent paper.

When I received the programme of this meeting I saw Dr. Bogue's subject dealt with the expansion of dental arches, thereby enlarging nasal passages, etc. It is true the roots of the deciduous teeth will influence the cusps of the permanent teeth beneath them, and make the jaws increase in breadth and length. At eight or nine years of age, however, work on the temporary teeth would not amount to much because of the absorption of the roots of the temporary teeth.

The Doctor's appliance will be a great aid in many cases, but there are more cases where the appliance *will not influence the roots* as much as the crowns. I believe we need to pay more attention to the root positions. Then if they are put right, the crowns must be.

It is some time now since I have looked at my  
**Dr. Bogue.** orthodontia work as the mere regulation of teeth.

That is almost secondary, and that perhaps explains the title of the paper as published in the programme. I can not resist the examination as to narrowed arches, adenoids, imperfect breathing, imperfect nutrition, psychical defects, and all that sort of thing, every time one of these little patients is brought to me. I think it is about six years since the paper was brought before the American Medical Association, in which one case only was described. Whether that case was successful, you may best judge from the fact I have had the sister, and now have another brother. Those children all had adenoids. There was an effort at recurrence in one of them. Once the expansion arches were put on, there was no further recurrence of adenoids. I do not recall a single case where there was a recurrence after our work was done, which shows the relationship between naso-pharyngeal difficulties and orthodontia.

I think Dr. Barnes, in referring to pre-natal conditions speaking of children who fail of proper nutrition before and after birth, touched upon a point of which all of us know too little.

Dr. Pullen asked me to speak as to the difference between spring and intermittent pressure. A few years ago my whole attention was given to the inclined plane and screw, but when I got hold of Dr. Ainsworth and his apparatus, and saw the patients, I began to wonder if something else would not answer as well, and maybe a little better. I have applied it now, I think, in about forty-two cases, and I am firmly convinced of its effectiveness. In the case of the little girl I have told you of, the apparatus was arranged without any pain, and from July until November, when the orthodontist took the fixtures off, absolutely no suffering was experienced by the child. She did not know what was





being done. I think that instance would also answer Dr. Pullen's question as to the propriety of using this apparatus.

The apparatus which I have taken pleasure in showing you to-day is not adapted to a great many cases, but I hope it may be of service to my brethren some day in the proper cases. One more reason for bringing it before you is that it shows a way in which multitudes who have not the wealth to apply, say to any of you gentlemen, for relief, may yet have the recourse of going to some one who will come up and be able to apply fixtures, and will do the work at a price within their means.

I owe also to Dr. Ainsworth the inception of the idea of putting on fixtures and leaving them there to do their work. It is not all original; I think he said it was an accident in his case; I do not wish to claim that at all.

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## **A Case of Double Resection of the Mandible.**

By W. O. TALBOT, D.D.S, Biloxi, Miss.

*Read before the American Society of Orthodontists.*

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For several years there have been rumors of a case of double resection of the mandible in New Orleans. The operation was said to have been performed for the purpose of reducing the protrusion of the lower jaw. Since marked cases of protrusion of the lower jaw are so common in this city, and there has been only one or two other such operations authentically reported, and since this class of cases is the most difficult for the orthodontist to handle successfully, I have been particularly interested in learning the facts connected with this case, and the results obtained.

About four years ago a male person, age 38, presented himself to a surgeon in New Orleans and asked to have a portion of his lower jaw removed to reduce the prominence of his chin. This was an extreme case and the prominence most disfiguring. The surgeon advised against the operation, but the patient insisted and said that he was determined to have the operation performed, as he had heard that it could be done. Other surgeons were called in and the operation finally determined upon. The resection was made on each side mesial and distal to the first molars, which teeth with their contiguous bone were removed. This operation severed the nerve and the principal blood supply of the anterior section



## ITEMS OF INTEREST

of the jaw. The bones were drawn together and held by wires passed through each of the ends. No splint was used in this case. Necrosis followed the operation, and it was some time before the patient recovered. In this case a deformity was corrected, and finally there was some union of the bone, but it is questionable if the patient was greatly improved, as there was a disfiguration on each side opposite the field of operation and the symphysis dropped down. The patient is now able to chew a little. The surgeons in this case recognized the error in operating so far back on the body of the jaw, and now say that they consider the region of the first bicuspid the proper field for operation in such case.

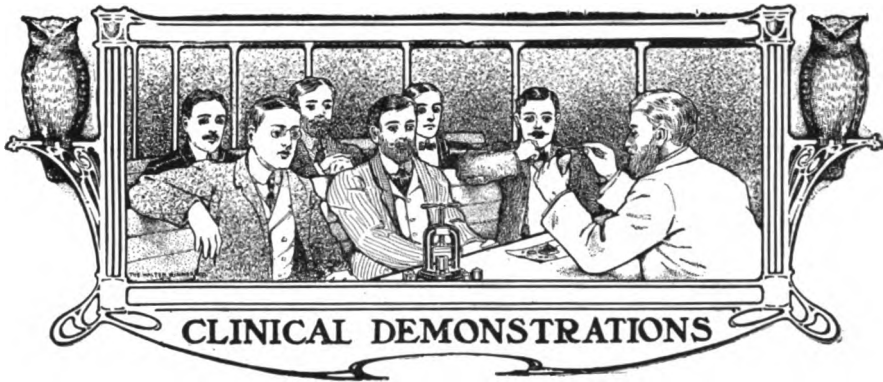
### Discussion.

**Dr. McKay.** Provided this is the case I think it is, I have heard it commented upon several times. It has been pointed to as a botch of what could be a proper operation if done according to a correct method. It was done very clumsily, and this case should not be accepted as evidence that such an operation is not warranted in certain conditions.

**Dr. Ottolengui.** Any deformity is possible. I am willing to go on record as saying that a real protrusion of the lower jaw is even rarer than a real protrusion of the upper. So-called protrusions of the upper jaw have been so diminished in numbers and the extent of the protrusions that a real protrusion is beginning to be looked upon as rare. I have seen a number of what we call Class 3 cases, and it has been perfectly marvelous after treatment and correction—which naturally did not shorten the mandible any—how different the profile would look when the upper jaw had been developed.

In the great majority of these cases, if the upper jaw is fully developed by treatment, and the lower teeth are really moved further out instead of further back, the apparent protrusion of the chin will disappear.





## **To Construct a Removable Bridge from Sound Cuspid to Second or Third Molar.**

BY A. T. SAWYER, D.D.S., MANCHESTER, N. H.

First remove pulp in cuspid, fill canal, burnish No. 30 pure gold to cover the palatal and approximal surfaces of this tooth; enlarge the canal and make platinum tube of No. 30 guage.

This is passed through the gold, already burnished to the palatal portion, and into the enlarged canal, and the tube and crown plate, as we will call it, soldered together and re-burnished and then reinforced with more solder, cemented into place and finished on tooth. The end of the tube in root is of course closed. Into this tube an iridio-platinum wire is adjusted and this is soldered to a smaller crown plate which has been burnished to fit the one already cemented on the tooth. This wire, when slightly bent, makes a secure attachment for the anterior end of the bridge, with no gold in sight.

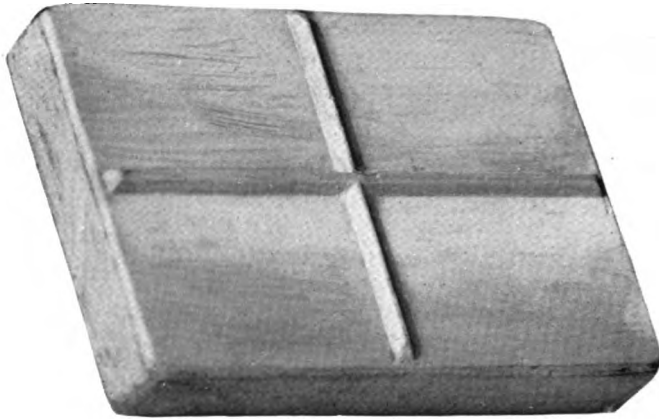
A saddle is then swedged to fit the ridge, of either gold or platinum No. 30, and the molar is crowned with gold, and attachment is made to it by any of the well known attachments, such as the Griswold; or what I think is better, make sides of crown straight and then make a band of clasp metal to fit accurately around this crown, and from this band down to the gum have a supplementary band soldered to the crown, thus forming a shoulder on which the clasp metal band can rest. To this clasp metal band the other end of the bridge is attached and held securely.

Now grind into position on saddle plain plate teeth and back with No. 35 pure gold, allowing this backing to extend down lingual side and



## ITEMS OF INTEREST

under tooth until it meets saddle on the ridge. Invest, solder and finish, and bridge is complete and ready to go into the mouth, and will prove a joy to the patient and a satisfaction to him who made it.



B

### **Why the Bridge Binds and a Method to Insure Success.**

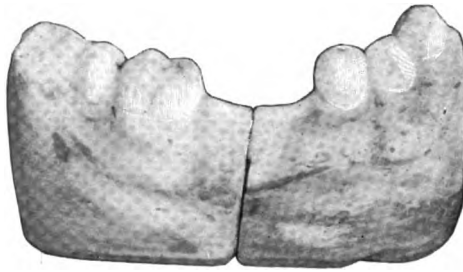
Clinic by H. E. HOLSEY, D.D.S., Springfield, Mass.

In soldering a bridge with two abutments the shrinkage of the solder draws the abutments closer together, hence the bridge binds when placed in the mouth. Run the impression and place plaster side down on slab (Fig. A). The slab is made of plaster with two ridges forming a cross

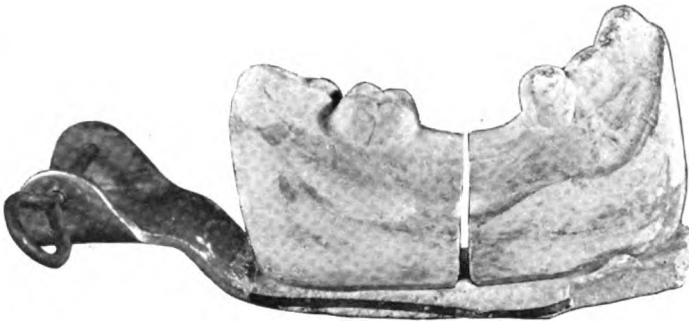


## ITEMS OF INTEREST

on the upper surface. It is shellaced and oiled to allow removal of the model (Fig. B). Oil the model on the grooved side and proceed to get up the articulation in the usual manner, being careful that plaster is not carried over sides of model, preventing a ready removal of same from articulator. After plaster has hardened remove model from articulator,



C



D

and saw nearly through at the transverse groove on underside. Now break the model that you may have a clean fracture. This is shown in Fig. C. The model is now fitted upon the ridges upon the articulator and separated the required distance. Having a space of one-half inch between abutments, separate cast one sixty-fourth of an inch; larger space in proportion. Fig. D shows separated model on articulator. Next proceed to make up bridge. When removing bridge for investment if you wish to solder on model saw down outside of the abutment; the bridge portion of the model can be removed without disturbing relations of the separated parts. A little practice will soon prove this a success which will be a source of satisfaction to yourself and patient when the bridge is placed in position. I have used this method six years and it is practical and successful.





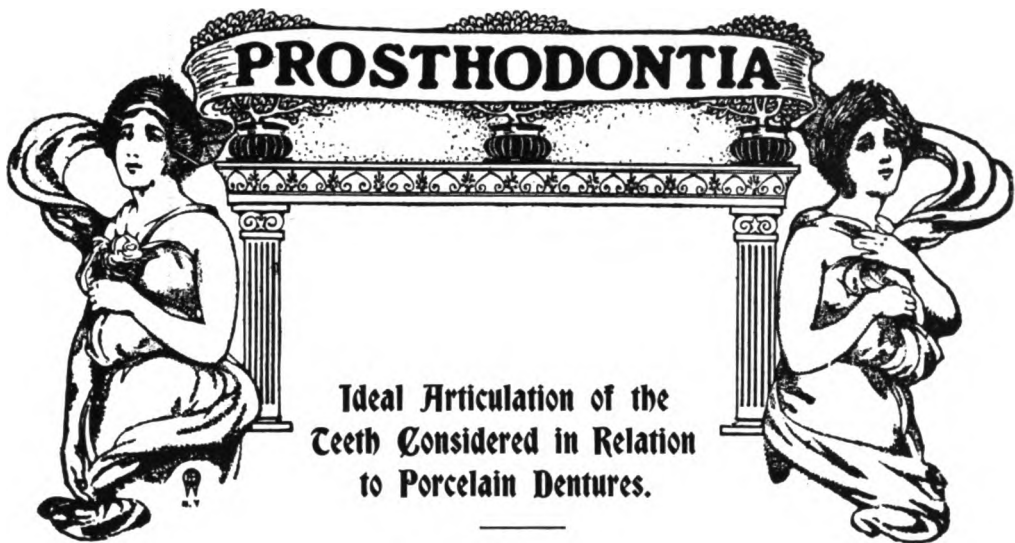
## Method of Using Inlay Gold in Making an Open Face Crown.

By W. H. HOYL, D.D.S., Dawson, Ga.

I believe we all agree in saying there are cases when the open face crown is clearly indicated, the great hindrance being in making a perfect adaptation. Follow the details of this method carefully, and I believe you will be pleased with the result.

Take the impression of the tooth to be crowned in plaster, producing a plaster model; trim model at cervical margin carefully with view of having finished crown extend under free margin of gum. Make impression in mouldine and run model in Melotte's metal. Polish metal model with cuttle-fish disk. Take inlay gold (preferably 24 k. one one-thousandth), cut a piece sufficiently large to cover the labial, and one for the lingual surfaces, cutting it large enough for overlap of one thirty-second of an inch in interdental spaces. With the assistance of slightly softened modeling composition you can readily approximately adapt this inlay gold to the metal model. For more perfect swaging, place the two sides of the crown in position on the metal model, and over this place the metal ring which comes with all mouldine outfits, and it being of same size rests firmly upon edges of model. Fill the ring flush with wet cotton, and pack it down with a wooden piston (home made), tapping it lightly with an ordinary hammer. Remove cotton and you will find the two sides of the crown stuck together, and they can be removed from metal model without disturbing this relation. Now place the perfectly swaged crown on asbestos mat, and with a small piece of 22 k. solder unite the two sides. Place on plaster model and cut out face with carborundum stone. Try on natural tooth and with oval burnisher adapt margins as you would in case of making an inlay filling. We now have a perfect matrix of the tooth to be crowned. Invest it by means of filling the crown, or matrix, with investment material, either fine marble dust or sump, bringing to a heat, and flow 22 k. solder over the entire surface. Finish just as you would an inlay filling.





By DR. STEWART J. SPENCE, Chattanooga, Tenn.

### III.

Having considered the placing of our casts on the articulator, let us proceed to the placing of the teeth on the models. And first we will consider the position of the teeth as a whole.

**Rule IV.** *The distance from the lower last buccal cusp of the third molar on one side of the mouth to the similar cusp on the other side should be equal to the distance from either of these cusps to the lower incisor point.*

Fig. 11 illustrates this rule, *a b* being the positions of the condyles, and the corners of the triangle *c d e* being the points in the upper teeth where occlude the points of the lower teeth specified in the rule. It will be observed that not only is the lower jaw an equilateral triangle (*a b e*) but also that the human denture is also an equilateral triangle, *c d* being equal to *d e* and to *e c*.

Various measurements taken from nature by the writer show that the average length of the line *c d* (or *d e* or *e c*) is two and one-quarter inches; that it rarely goes above two and three-eighths inches or falls below two and one-eighth. (This makes the distance from the last molar to the X joint—the line *d b* in the figure—about one and three-quarter inches.) This measurement from molar to molar (*c* to *d*) is much more than that of most artificial dentures; my measurements of nine plates give only one and seven-eighth inches as the average width—about three-eighths of an inch below nature's.



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It must not be supposed that when the third molar is omitted from the porcelain denture the similar point in the disto-occlusal border of the second molar should be made to take the place of the third as the corner of this triangle; on the contrary, it should be, as shown in the figure, located on the arc *g h* (drawn from the point *f*), which arc marks the occlusal groove of the five upper grinding teeth. This reduces the distance apart of the molars by one-sixteenth of an inch—from two and a quarter to two and three-sixteenth inches.

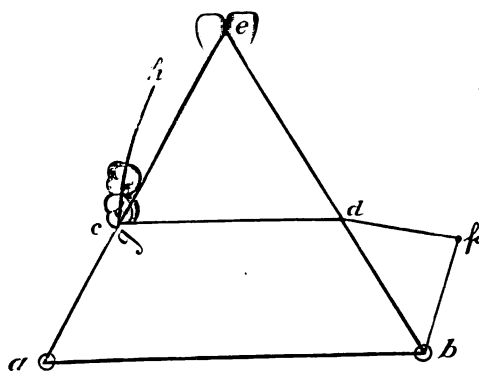


FIG. 11.

With regard to this arc *g h*, some writers claim that this occlusal groove of the five grinders should run in a straight line, but I have not so found it in any of my models, which have been taken from impressions of very perfect dentures. These show that it has a slight curve—that of a circle about seven inches in diameter. By this means the natural teeth are like staves in a barrel—mutually kept from falling inward. But in prosthetic dentistry this is of little importance. More vital is the question whether the circumstance of alveolar absorption does not so alter the case as to justify the prosthodontist in departing from nature's law with regard to the width between the molars, and placing them closer in under the ridge. Unquestionably tilting of the plate in biting is favored by placing the molars far out, where absorption has removed the support. Also, in such case, the upper plate is apt to crack from the incisors backward along the palate; also molars are liable to break away with the sections of vulcanite. These are important considerations, and in view of them the writer deems a moderate departure from nature's law sometimes advisable. On the other hand, it should be said that correct articulation of the teeth reduces greatly the liability to tilting of plate in biting; and it should be remembered that whatever is gained



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for the upper plate by setting its molars inward is gained at the expense of the lower plate, the molars of which are thus crowded inward also, away from the supporting ridge, and caused to invade the realm of the tongue.

I am aware that this evil is frequently remedied in practice by reversing the natural occlusion of the last one or two molars, by placing the lower ones buccally to the upper. Not to mention that this crossing of the occlusal surfaces interferes with the correct articulation of these

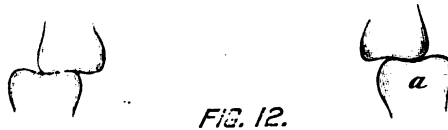


FIG. 12.

teeth, especially if long-cusped, it is open to the serious objection that it reduces by about fifty per cent. the surface employed in mastication. This is illustrated by Figs. 12 and 13.

Fig. 12 shows molars thus crossed, and in full occlusion. Fig. 13 shows the same teeth when the return movement of the lateral bite (*c a* of Fig. 2) is commencing. The right molars are seen to occlude very nicely, their entire occlusal surfaces coming together, but this is of no



FIG. 13.

use, because in this lateral bite the food is between the left teeth, which will occlude and grind only while *a* in Fig. 12 is returning to the position of *a* in Fig. 13.

It should be remembered that absorption in the lower jaw takes place, as regards the molars, entirely on its lingual aspect. By placing the molars where nature placed hers, instead of trying to make them ride the receded ridge, and by opening the bite as wide as did nature (which for some reason—probably to avoid exposure of the pink rubber gums—is rarely done) it is often no difficult matter to find room for the third molar; and if needs be that it be ground so thin as to be likely to fracture in use, the porcelain may be removed before packing and a vulcanite tooth allowed to appear in its stead. Often, also, it is well to invert the position of the second and third molars—turning their pin-heads toward the cheek.



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**Rule 'U.**      *The twelve anterior upper teeth—that is, from the incisors to the first molars, inclusive—should be so placed that their incising edges and buccal cusps are all on the same plane; the second and third molars rising abruptly from said plane.*

For an illustration from nature of this rule see the line *k l* in Fig. 3. This line is not shaped with the incisors lower than the bicuspid\* (Fig. 14); still less is it shaped with the incisors higher than the bicuspid (Fig. 15) (a very common defect of porcelain dentures, due to dentists using short-bite teeth where lower teeth, having long-bite, remain);

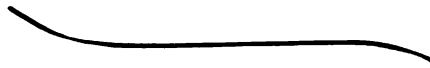


FIG. 14.



FIG. 15.



FIG. 16.

but this line is shaped as in Fig. 16, that is, the line is straight from the first molar forward. This form seems the most beautiful. The case is different with the lower teeth, for with them the overbite (or, as Dr. G. B. Snow more properly terms it, the underbite) must be allowed for, which causes the occlusal plane to assume a bow shape, as in *a b*, Fig. 17.

Here only the first molar and second bicuspid are on the level line *c d*, for the last two molars rise above it at one end and the four front teeth (beginning at the first bicuspid) rise above it at the other end, each end rising to equal height with the other. For in order that the occlusal plane shall be as nearly on a level with the *X* joint as its curvilinear form permits, it must be that its last buccal molar cusp rises as far above the line *c d* as does its incisor point. For it is evident that if the occlusal plane were placed relative to the *X* joint, as are either of the curved lines *e f* or *g h*, the bite in mastication would be made at a great disadvantage, the food being forced forward in the one position and backward in the other; therefore an equilibrium of these two positions must

\*Perhaps it is only fair to say that Dr. Kingsley, in "Oral Deformities," p. 499, takes an opposite view.



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be correct. Accordingly the rule is that a line drawn from the incisor point to the joint of the articulator should touch the last buccal cusp of the lower third molar. A flat instrument, such as a ruler, placed on a lower denture at these two points should, if produced backward, reach to the joint of the articulator. This law, though not imperative, should not be departed from.

By following nature in giving to our two last molars this upward incline of the occlusal plane, we obtain more room than we should otherwise have for the third lower molar. Although not an enthusiastic advocate of the use of the third molar, yet the writer believes its wholesale condemnation to be unjust, and that these despised and rejected "wisdom teeth" can in many cases be used to advantage.

*The last molars should occlude, in both the incising and lateral bites, simultaneously with the incisors, in order to accomplish which the occlusal plane of the last molar should incline upward at an angle of about twenty degrees from the plane of the twelve upper anterior teeth mentioned in Rule V.*

**Rule VI.**

The object of this arrangement is to prevent dislodgment of the plates during the lateral and incising bites. Without it contact would occur only at incisors, in both these bites, except, of course, where there is no overbite at all. It is also claimed for it that it aids muscular action by affording the muscles on the right side during the lateral bite something to act upon. It is always present in Nature's perfect dentures.

Fig. 3 will help us to understand this rule. Here the line *k l* is the plane of the twelve upper anterior teeth, and *m n* is a line drawn through the occlusal plane of the last molar. This line, it will be observed, is inclined to the line *k l* about twenty degrees. In Nature, the inclination of the occlusal surface of the last molar, in perfect dentures, does not deviate greatly on either side of this angle.

Observe that the rule says "upward incline of the occlusal plane of the last molar," not of the last three molars; still less of the entire five grinders. It is not necessary nor advisable that the last three molars should have the same degree of inclination as the last one; for in such case their occlusal plane would be along the line *i j* in Fig. 17; which would necessitate placing the upper bicuspid and first molar lower than the incisors, thus rendering them so conspicuous as to be unsightly. It is true that by placing the molars in this way we could make them all, instead of only the last, occlude when the incising bite is made; but there would be nothing gained thereby; the degree of inclination required for the third molar would not be lessened.

Fig. 18 illustrates the relation of this inclination of the last molar



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to the overbite and to the protrusion of the lower jaw in making the incising bite. Here  $a b$  is the occlusal plane,  $b$  being that part in the upper central incisors where the lower incisors occlude (the  $e$  of Fig. 11) and  $c$  being the incising edge of said upper incisors. Let  $d$  be the  $X$  joint, four inches from  $b$  and one and three-quarters inches from the last molar at  $a$ . Now let the lower incisors drop from  $b$  to  $e$ , and move forward an equal distance to  $c$ , to make the incising bite; simultaneously the lower last molar must drop from  $a$  to  $g$ , and move forward

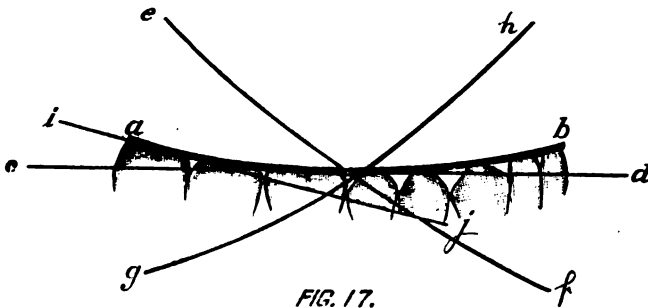


FIG. 17.

to  $f$ , at which point contact of the last two molars must recur. The inclination of the line  $a f$  is therefore proportionate with that of the line  $b c$ , and is about that which is usually required in porcelain dentures.

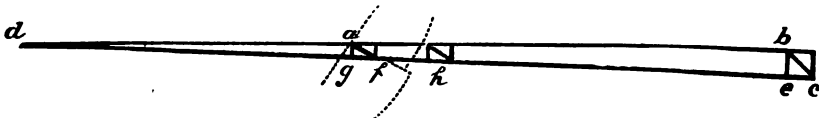


FIG. 18.

Where the third molar is omitted, this line must be slightly steeper, because farther from the  $X$  joint, as shown at  $h$  in the figure. Its inclination does not differ much if any in differing lengths of overbite, because the protrusion which is needed to make the incising bite is usually equal to the overbite, the line  $e c$  being equal to  $e b$ . Therefore if the overbite be one-eighth of an inch and the protrusion also one-eighth of an inch, the last molar will be carried forward one-eighth of an inch, thus occluding with the upper molars at a point twice as far from  $a$  as is  $f$ , having at the same time dropped twice as far down, and thus the inclination of the line  $a f$  is unchanged. The same is true if the bite is longer or shorter than one-eighth.

It is not certain that nature has any ideal length for the overbite, and in the lymphatic temperament we find it shorter than in the others.



Nevertheless, as one-eighth of an inch is about half the width of a bicuspid, and as, if the overbite be one-eighth of an inch and the protrusion also one-eighth of an inch, the cusps of the bicuspid are brought into vertical opposition and contact when the incising bite is made, therefore it seems somewhat probable that one-eighth of an inch is the ideal overbite for an equally balanced temperament.

We have spoken hitherto as though the upward inclination of the occlusal plane of the last molars were the only factor in securing simultaneous occlusion, but there is another which must be considered: In moving forward to make the incising bite the lower teeth are carried into opposition with a narrower portion of the upper denture, so that the last lower buccal cusp occludes no longer in the upper occlusal groove but some distance up the inner slope of the buccal cusp of the upper molar, thus reducing (in proportion to the steepness of the cusps and the length of the protrusion) the steepness needed in the incline of the occlusal plane.

Where there is no overbite there should be no upward incline at the molars. If any be given to them the lower jaw can not be protruded without causing the incisors to be held apart by these last molars. And the same is true of the lateral bite—the incisors and the left bicuspid and molars would, in such case, be kept from occlusion until the end of said bite, that is, until full occlusion would be reached.

Even where there is overbite, the incisors will be held from contact whenever protrusion of the lower jaw is made farther than just far enough to bring the upper and lower incisors in occlusion in the incising bite; for when during this bite the two inclined planes of the molars come in contact any further protrusion of the lower one causes it to ascend the inclined plane of the upper one, and so to hold apart all teeth anterior to it. The "bull-dog bite," therefore, is impossible under ideal conditions.

Similarly, in the lateral bite the teeth on the left side are held apart by the contact on the right until, in its return movement, the mandible has brought the left lower bicuspid directly vertical with the upper, at which position said left teeth should have come to actual contact in occlusion.

To get both the occlusal plane and also the cusps of these last molars so inclined that in both the lateral and incising bites simultaneous occlusion of molars and incisors will take place, is no easy matter. Fig. 1 will help us to understand this. Here the arc *f g* shows the path traveled by the last lower right buccal cusp in the lateral bite, while the straight line *f j* shows the path said cusp travels in the incising bite. Now, as the occlusal groove of the upper last molar (or, rather, last two molars; for in the lateral bite this lower cusp engages both), with which said



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lower cusp articulates when in full occlusion, occupies a position about midway between these two lines, it is obvious that in traveling the line *f g* said lower cusp ascends the palatal cusp of the upper molar, and in traveling the line *f j* it ascends its buccal cusp, and that it will do this the more that these cusps are steep or that they lie athwart its path. If therefore these occlusions are found on trial to be not made correctly, they should be remedied by altering the direction in which these teeth lie antero-posteriorly, or by inclining them more toward the cheek or toward the palate, as the case may require, or by regrinding. Patience and skill are here required. If the dentist has not this skill, let him sacrifice correctness in the incising bite rather than in the lateral, because the former is comparatively little used, while the latter is made from twenty to thirty times for each morsel of food.

It is difficult with the articulators on the market to decide when these two bites are correct. With them the dentist in examining the case has to force back the upper teeth against their resisting springs and hold them as best he may with the incisors edge to edge in front while he tries to make his examination at the back. This is next to impossible. The writer has overcome this difficulty in his articulator by adding to it two little screws, which are made to hold the jaws in the incising and lateral bite positions—the incising, by turning in both screws, the lateral by turning in but one.

*The length of the cusps should be in proportion to the overbite; long when it is long, short when it is short.*

**Rule VII.**

If the overbite be longer proportionately than the cusps, it must follow that in the lateral bite the cusps will fail to mash correctly, being held apart by the occluded incisors. This will be particularly manifest in the bicuspid. The overbite of the bicuspid (which is the length of their cusps) is but little less than that of the incisors.

*In the lateral bite the buccal cusps of each jaw should interlock with the buccal cusps of the opposite jaw.*

**Rule VIII.**

The human denture has four ways of comminuting food—by incising, rending, grinding and crushing. Each of these must be fully conserved in the porcelain denture in order to copy the ideal. The rending, which is very important, can not be performed with cusplless teeth, and but imperfectly with short cusps, or with cusps that do not correctly occlude. This important factor is greatly neglected by prosthodontists.

This rending is performed in two ways: (a) by the food being stretched and torn by the cusps, particularly those of the bicuspid, while



they are in the act of passing each other in the lateral bite; (b) and by the food being stretched over the occlusal eminences which extend bucco-lingually across the occlusal groove. Fig. 19 shows the teeth in the first of these two, exhibiting their cusps in normal occlusion, as seen from the buccal aspect. On the lingual side of these same teeth the cusps should be somewhat similarly interlocked, though not in actual contact, being held apart a millimeter, as shown in Fig. 22.

The occlusal eminences, above referred to as the second factors in



FIG. 19.

the stretching and rending of food, are extensions of the bases of some of the cusps, reaching across the occlusal valley and making of it a series of basins instead of one long trough. (It need not be pointed out that this beautiful device of nature is more effective for mastication than would be a trough.) Into these basins occlude the cusps of the opposite

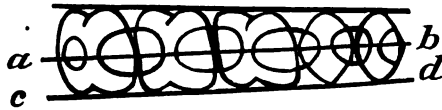


FIG. 20:

jaw, the occlusal eminences of each row of teeth occluding with the basins which stretch across the interdental spaces of the other. Fig. 20 roughly shows in diagram fashion the locations of these basins in the upper teeth; the occlusal eminences being, of course, shown by the spaces between the basins.

Unfortunately, in grinding to correct depth the occlusal grooves of the porcelain teeth of commerce, the dentist is usually compelled to obliterate whatever there is of these occlusal eminences in the molars, so reducing the grooves to a mere trough; but in the bicuspid they can easily be preserved.

Fig. 20 correctly represents some other facts: (1) that the occlusal groove (a b) is equally distant throughout its entire length from the buccal border c d; (2) that the five upper grinding teeth gradually increase in width bucco-palatally as they proceed posteriorly; (3) and that



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this increase is all in the palatal side of the occlusal groove. In the lower teeth, the reverse obtains.

**Rule IX.** *The buccal cusps of both upper and lower teeth should decrease in height as they proceed posteriorly in the degree that if carried backward to the X joint they would be reduced to nil.*

This is illustrated in Fig. 19, where the buccal cusps are seen to decrease in height from one-eighth inch at the first bicuspid to one-twelfth inch at the third molar, the angle *a* representing the X joint. (In order to illustrate this decrease the upward incline of the second and third molars has been omitted in the figure.)

As the buccal cusps of one jaw must be equal in height to the buccal cusps of the other jaw, that they may mash together correctly (as in Fig. 19), and as the cusps indicate the depth of the occlusal groove (this being formed by them as a valley is formed by surrounding mountains) it follows that if the cusps are of the height to mash together correctly they must be of the right height to reach to the bottom of the occlusal groove. The dentist has therefore only to grind out his groove until the cusps properly interlock in the lateral bite, and said groove will be of correct depth.

**Rule X.** *Beginning with the first molar, the axes of the posterior teeth should increasingly incline, the upper inclining buccally, and the lower lingually; so that the palatal cusps of the upper teeth shall be increasingly longer as they proceed posteriorly and the lingual cusps of the lower teeth increasingly shorter.*

Nature's object in thus tilting the molars is not obvious. No doubt there is some advantage in it, and yet an excellent denture can be made of teeth not so arranged, but with the four rows of buccal and lingual cusps equally high.

Nature's arrangement is shown in Fig. 21, except that the upward incline of the occlusal plane of the second and third molars is here omitted in order to exhibit by straight lines the heights of the cusps. In this figure the inner cusps are drawn in thin lines; the buccal in thick. In the three upper molars these inner cusps can actually be seen, but in the upper bicuspid and all the five lower teeth they are supposed to be seen through the tooth. Parallel with the line *a b*, which gives the line of the upper palatal cusps, are the lines *e f* and *c d*, the first of which marks the position of the lower palatal groove, into which said upper palatal cusps articulate in the full occlusion bite, and the second of which—the *c d* line—marks the line of the lower lingual molar cusps, with which said upper palatal cusps occlude during the rending part of the lateral bite.



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or rather, *almost* occlude. I say "almost," because for some reason not clearly apparent, but possibly because a little oozing out of the food permits that which remains in the dental mill to be more thoroughly crushed; nature does not bring the palatal and lingual cusps quite in contact during the lateral bite, but (as already remarked) allows a separation of about one-thirty-second inch, as is illustrated in Fig. 22.

Fig. 21 shows also the heights of the two lingual cusps of the lower bicuspid, the first of which is usually short, as though undeveloped—not that it could not, if high, be of use in mastication, but probably it interferes slightly with the tongue; or possibly because nature, in esthetic

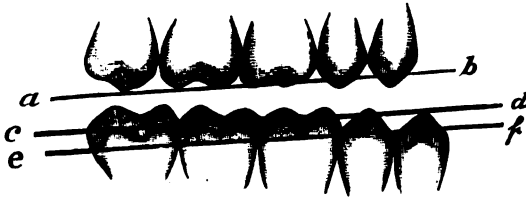


FIG. 21.

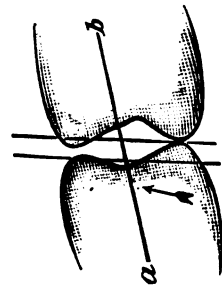


FIG. 22.

mood, saw it to be unsightly. In the second bicuspid the lingual cusp shoots up to a height nearly equal to the first lingual cusp of the adjoining molar. This molar cusp is the highest of the lower lingual cusps, articulating in the large intercusp space made by the recession of the first palatal cusp of the first upper molar. From this highest point the lower lingual cusps decrease in height as they proceed posteriorly, as shown in Fig. 21.

When either the upper or lower molars are examined out of the mouth, their buccal and lingual rows of cusps are seen to be of equal length; it is only when seen in the mouth that they are as above described. In looking at them out of the mouth we naturally hold them upright, but in the mouth their axes incline, the inclination increasing from the first to the third molars, where it is about as shown by the line *a b* in Fig. 22. This tilted position gives to the lower molars the appearance of having their occlusal groove located quite far lingually, while in reality it is only slightly so.

As therefore the palatal cusps of the upper molars are, when in the mouth, longer than the buccal, and the buccal cusps of the lower molars longer than the lingual, it follows that when these two higher cusps



## ITEMS OF INTEREST

occlude (as they do in the lateral bite) all the rest of the teeth in the mouth are kept from occluding. True, but this occurs only when these teeth are in contact *at their highest points*, which is only when the lateral bite is at its extreme reach; and at such time the food, which is between the teeth on the left, counterbalances this pressure on the right; and by the time the left teeth have come inward far enough for their buccal cusps to be in vertical opposition, as in Fig. 19, the high cusps on the

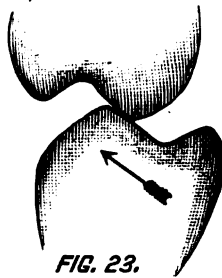


FIG. 23.

right have descended from their highest points of contact to about the position shown in Fig. 23, thus permitting contact on the left as soon as needed. (Compare this with paragraph 9 of Rule VI.)

*The cuspal borders of the bicuspid and molars should be sharp-edged.*

**Rule XI.**

This rule, though last, is not least. Nature intended the masticatory apparatus for cutting as well as for rending and crushing; and cutting can not be done with blunt tools. Contrast the little blunt-edged, harmless-looking thing, the molar with which commerce supplies us, with the ferocious-looking spiked-and-grooved weapon which nature puts into the mouth, even at the early age of six years, and there will be no doubt which one was meant for preparing the tough muscles of the ox for the human stomach.

The worn teeth of the adult ought not to be our criterion, for in them the cusps—especially the upper palatal and lower buccal—are often found rounded from attrition, whereas originally they were keen.

The cutting quality of a tooth is greatly increased by length of cusp, and the longer the cusp the more apt it is to be keen-edged; but even short-cusped teeth may have sharp edges. The occlusal groove should be similarly angular, resembling a V rather than a U. To give this shape to said groove, a keen-edged grinding-stone is required. The writer uses one which he has brought to a V shape at its periphery by grinding it on another wheel. Carborundum wheels will cut one another very readily.



## PROSTHODONTIA

### **Modification of Manufactured Teeth Advocated.**

As teeth are now made it becomes necessary to grind their occlusal surfaces in order to get scientific articulation. This sacrifices the occlusal eminences and corrugations of the molars. Besides, it is a very difficult thing to do correctly, for the occlusal surface of each grinding tooth has four inclined surfaces (see Fig. 23), three of which occlude.

Now, to get these six inclines (three in each jaw) ground so as to fit perfectly is well-nigh impossible. *All this could be avoided by the manufacturers.* If they would make teeth according to nature's patterns, and make the upper and lower teeth to correctly occlude with each other, it would be comparatively child's play to set up scientifically articulated porcelain dentures. If the manufacturers would also abandon the thousand and one molds on the market, and agree together to use only similar and a very few molds, how easily then might the dentist obtain the exact size and shape of any tooth required in all ordinary cases! If there were but nine or twelve different molds on the market for bicuspid and molars, and a somewhat greater variety for incisors and cuspids, how much trouble and annoyance would be saved to both salesmen and dentist, and how much better dentures would be produced! There would need be—at least for plain teeth—only three sizes of occlusal surface for bicuspid and molars; and these three sizes would need to be each furnished with only three or four different lengths of cusps, for overbites of say 1-32, 1-16, 1-8 and 3-16 inch; and as long cusps accompany long crowns, there would be no need of special provision for the latter. Thus about a dozen molds would supply the needs of all ordinary cases in the grinding teeth, and abnormal cases could be specially provided for by special molds. It is pleasant to see that as time goes by there are improvements both in the shape of our porcelain teeth and in articulators, and that we shall yet succeed in obtaining perfect teeth and perfect articulators, so that we may make perfect porcelain dentures, built according to nature's ideals. Not only is this "a consummation devoutly to be hoped for," but one that may reasonably be expected to arrive before the expiration of the twentieth century.







## A Few Facts in Connection with Root Canal Treatment.

By WILLIAM E. TRUAX, D.D.S.

*Read before the Monmouth County Dental Society May 3, 1907.*

It is with some hesitancy that I bring before you such a hackneyed subject as a proper material for a root canal filling, and with considerable timidity that I attempt to treat it in the manner proposed. I, however, will not bore you with a lengthy description of my method of filling root canals, as I have no method, and realizing my limitations from a scientific standpoint, I desire to call your attention only to some of my observations in connection with my own work and the work of others for the past twenty-five years.

As a prelude, permit me to say that a man must have the courage of his convictions to a marked degree to advocate before such a body as this a method of root canal fillings, so long ago become obsolete and quite universally condemned, and I do not advocate it in the sense that I would have you abandon other and more approved filling materials in all cases. But I would have you try this method in obstinate cases of abscessed teeth where no fistula exists, and in acute cases of periodontitis due to gangrenous or putrescent pulp.

### **Wood Creosote in Root Canals.**

The method is the use of wood creosote upon shreds of cotton as a dressing for root canals that are putrescent; as a permanent (?) filling in root canals that may possibly become putrescent because of inability from any cause to remove every portion of a devitalized pulp; and as a treatment without surgical interference for



those cases of alveolar abscess, without fistula, that have, owing to a low state of vitality in the individual, or a strumatic diathesis, absolutely refused to yield to other treatment.

I will relate just one or two cases. While I

**Case 1.**           was still a student I was shown a tooth, an upper molar, that was extracted the previous day for the purpose of inserting a denture; it had been treated twelve years before, and the roots filled with shreds of cotton saturated with creosote. In my presence the roots, three in number, were broken halfway between the neck of the tooth and the apices of the roots, and there was present the distinct odor of the medicament used, creosote, and absolutely no evident putrescence, and no discoloration. I am fully aware that this condition can, and does, exist in thousands of cases where other materials are used, but this and many other cases prove that it may exist where creosote and cotton are used as a root canal filling.

**Case 2.**           Twenty-two years ago there came to me a school girl about eighteen years of age, who some months before had had a left upper central or lateral filled with gold. For some reason the pulps had died and two separate abscesses had formed. The inflammatory process was so inactive that no fistula was formed, due, of course, to the fact that the leukocytes and the pathogenic bacteria were so evenly matched that neither could obtain the supremacy. Yet the bone was denuded of its periosteum, a portion of the alveolus was absorbed and the two abscesses were united. The teeth were opened upon the palatal surfaces, and after treatment with only creosote for a number of weeks, during which time a physician advised extraction, the discharge ceased, and the canals were filled with cones of cotton saturated with creosote; but as the apices were large owing to absorption that had taken place, the ends of the cotton cones before inserting were dipped in chloropercha and gently forced in position, and the operation completed as usual. To-day those teeth are doing good service, never having been disturbed; at no time has there been any inflammation of the pericementum, and no more discoloration than existed when the teeth were treated. The woman has married, given birth to five children, and once had a severe attack of pneumonia.

Another case of more recent date. About one

**Case 3.**           year ago a friend and fellow practitioner in a neighboring town related a case of an inferior bicuspid with a blind sac at the apex of the root that had persistently refused to yield to any treatment at his hands, always causing trouble when closed. I said "use creosote," and at the fourth sitting subsequently the tooth was closed and has remained so since, about one year.



## ITEMS OF INTEREST

Reports of these cases could be prolonged, but these are sufficient to demonstrate the practical use of wood creosote as a dressing in the treatment of at least a few special cases, and possibly sufficient reason why, in spite of its extremely disagreeable odor, it should occupy a place in our cabinet. As to the ready removal of such dressing or filling, when used as a permanent (?) root filling, as compared with the more positive ones, many of us can testify. How much oftener trouble ensues with this treatment than with other methods I am not prepared to state, but I am convinced that from the patient's standpoint, where easy relief is the point in question, at least five such cases will not nearly equal one dense or positive one difficult of removal.

In this connection permit me to quote from no less authority than the late Professor J. Foster Flagg, whom I knew intimately and well, and with whom I have discussed this matter many times. He says in his "New Departure Papers": "I have followed six thousand cases of treated teeth which had to be retreated, six thousand cases of teeth in connection with which pulp cavity or canal work had been, from some cause or another, a feature in the treatment, and in those six thousand cases, of which some were excellently well treated, others not so well, and others poorly treated, nine in every ten had given trouble before twenty years of that tooth's life had passed over."

I have filled upward of four thousand, I will not say pulpless teeth (I have tried to have them pulpless), but devitalized teeth, and in doing so have used almost every known method, and I am frank to confess that the percentage of failures with the so-called permanent canal filling and those so-called temporary dressings containing a medicament so applied as to make removal and retreatment easy, are about equal; but because of the difficulty of removal of the one and the easy removal of the other, the difficult ones seem to outnumber the others as ten to one.

### Requirements in Canal Filling.

I believe that good results, shall I say the best result? in root canal filling can be obtained by filling with medicaments that are slightly non-poisonous, non-irritating and of long continued anti-septic properties; and that these should be introduced in fluid, semi-fluid or paste form, or possibly upon a vehicle which absolutely maintains its integrity. Again, that the filling should fill as perfectly as possible in order to prevent the entrance of moisture into the canal and thus add more material for decomposition and formation of mephitic gas. Again, the filling should be easy of introduction, not that this is essential, but all else being equal, it is at least desirable; last, but not least, it should be easy of removal, which attribute, while it is of little



consequence at the time of introduction, becomes of paramount importance to the patient if, in the course of time, say ten to twenty years, it means the long continuance of suffering or the affording of prompt and easy relief.

The medicaments of which I can best speak are those which I have used the longest, and none have I used longer and with better results, where it is especially desired to get a result (in difficult cases), than wood creosote.

**Tricresol  
and Formalin  
Treatment.**

Just a word concerning the much talked of Buckley treatment of putrescent root canals, tricresol, formalin and alcohol. I have used this treatment with most excellent results, and I am convinced that at least much of the good that is in it results from the presence of creosote in the combination: Creosote, a distillate from wood tar; tricresol, a combination of the three cresols; orthocresol, meta-cresol and paracresol, each a phenol from either coal or wood tar.

It is claimed, I believe, that with the Buckley treatment the dressing can be introduced into a canal that is putrescent and sealed therein, and that through a chemical action of the tricresol and formalin, a complete change of the character of the contents of that root occurs, rendering inert its contents. Whether this is the case or not, of course I do not know, but I do know that I have been doing for twenty-five years just such things with creosote that many, if not all of us, are doing to-day with the now celebrated Buckley treatment.

Of my failures, gentlemen, and there are many, probably my co-laborers can tell us more than I can or would probably care to relate if I could, but suffice it to say, that I feel highly honored to present the substance of this paper to the Monmouth County Dental Society, and hope you will discuss it, yet hope you will not too harshly condemn it until you have proved the falsity of the statements contained therein or demonstrated to your satisfaction its usefulness.







### The Problem of Interchange.

Periodically the cry goes up for reciprocity; for interchange of dental licenses. "If a man is good enough dentist to practice in one State, he is good enough for any State." Is this true? It sounds logical, at first, but it does not bear analysis. The theory is correct, but the application is faulty.

A peck is a peck in all States; a pint is a pint, and a pound is a pound. All miles are of the same length, and all acres have the same dimensions. But the measure of a dentist varies in all parts of this country; hence the fallacy of declaring that a dentist good enough for one State is good enough for all. Undoubtedly there are dentists in all States capable of practicing in any State. But passing to the opposite extreme, there are dentists practicing in all States that are not fit to practice in any State, which shows the defects in the methods of measurement, and the error of demanding interchange of all licenses, without restrictions.

#### State Standards in Dentistry.

This leads to a consideration of licenses, and the reasons for their existence. Broadly speaking, dental licenses are made requisite as a protection to the public, and not, as too often supposed, as a benefit to the men already in practice. Incidentally other rights must be





guarded. Consider the laws of New York State, for example. This State has granted charters to several colleges permitting them to teach dentistry. But of course the schools chartered in New York State must comply with the educational standards of admission which have been erected. Before a graduate of one of these schools can obtain a license to practice in New York State, he must pass the New York Board and thus prove that he can meet the dental standards demanded by New York laws. Let us for a moment have in mind a young New Yorker desirous of practicing in his own city. Seeking an education, he discovers that there are schools outside of New York which have lower entrance requirements, and situated perhaps in States having lower standards of dental examination. Now presuming that such a man could leave his own State and obtain education and dental license more easily elsewhere, and supposing that having such license he could interchange with New York and thus gain his end, and practice in his home city, would it not be likely that he would adopt this easier road, and would not New York State, in granting that interchange license, be discriminating against the schools which New York State has chartered? This question needs no reply. The deduction is obvious. To protect her own people, and her own schools, New York must not grant license except to candidates who can measure up to the New York standards. In other words, though a dentist may be "good enough" for the examining board of some other State, he should not be considered good enough for New York unless he could measure up according to the New York measurement of a dentist. What is true of New York is equally true of all States, but has more force in those States wherein there are dental schools.

The logical deduction of this argument is that there can be no unrestricted granting of license interchange until all States have equal standards and equally capable examining boards. So long as the doctrine of States right shall be maintained in this country, just so long will it be next to impossible to enact exactly similar laws throughout the Union.



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### **Interchange Possible.**

Does it follow that the problem of interchange is unsolvable? Not at all. Indeed, it was very well solved at Asheville, and the proposition there enunciated would have proven many times more successful if the National Association of Dental Examiners had shown themselves as enthusiastic for interchange when at home acting as bodies with legal power, as they seemed to be when in convention at Asheville, where their legal powers are less than zero.

The so-called Asheville resolution was especially drawn to meet the difficulties of the problem of protecting both communities and chartered schools. The most potent restriction is that the candidate shall have been in practice five years, and that he shall not only have his original State Board license, but likewise a recommendation from his State Board.

The schools are thus protected because, to come back to our supposititious case, our New York man, wishing to practice in his own city, would not go out of the State for his education and license, if compelled to practice in that foreign State for five years before being able to obtain an interchange license in New York.

Secondly, the differing standards are somewhat equalized by the fact that the candidate must have first obtained a license, then have practiced continuously for five years, and at that time must be able to obtain a recommendation from the Board of the State which he leaves. Compliance with these requisites make a common measurement of a dentist which might very well be acceptable to all States.

### **Abuse of Interchange.**

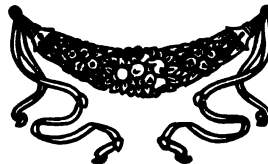
But as just as is the Asheville resolution, many have sought its aid to accomplish exactly that which the resolution was so carefully drawn to prevent. They have hoped to enter one State by way of another. Thus a man desiring to move from Wisconsin to New York, and hearing that New Jersey interchanged with both, elected to obtain a license from New Jersey by interchange from Wisconsin, and upon that to demand a license from New York also by interchange. This would be manifestly unjust, since New Jersey would thus merely become a means of passing a man from Wisconsin to New York who could not enter New York direct. But such attempts could be easily





frustrated by the requirements of the Asheville resolution, even in its original wording. The Wisconsin man having obtained an interchange license from New Jersey, when applying for an interchange into New York, should be asked, "Where is your recommendation from the New Jersey Board showing that you have been in practice in that State for five years?"

Really the Asheville Resolution is a good solution which renders injustice to no one. It is restricted, of course, but restrictions will be necessary until standards are equalized in all States. That the Asheville Resolution has not been more widely adopted would seem to indicate that after all there is no widespread eagerness for interchange. The vast majority of dentists practice in one locality for a lifetime. Hence there is no great force back of the movement for interchange. Nearly all admit that interchange is desirable, of course, but being satisfied in their own localities they make no energetic effort to compass the result.







### **J. Bond Littig, D.D.S.**

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On May 25th New York dentists were startled to learn of the sudden death of Dr. J. Bond Littig. The Doctor, though sixty-seven years of age, appeared to be still in his prime and enjoying rugged health. He was ever present at the meetings of the more prominent local societies, and took active part in all discussions. Even his nearest friends did not suspect that he suffered from any heart ailment, so that the unexpected news of his death from heart failure was a great shock.

Those who had the honor of any close association with Dr. Littig will ever cherish memories of that intercourse as vital periods of their professional lives. He was a genial, wholesouled, thoroughly just and square dealing man, above the petty strifes that so often mar professional lives, yet ever ready to enter strife as a pacificator. In discussions his talk was always enlightening. Free from verbosity, but virile with the results of ripe experience, whatever he had to say was sure to attract attentive listeners, to their profit. He was also a good after dinner speaker, and during the past winter delivered at least two such addresses which astonished those present because of their exceptionally fine sentiments and the magnetic oratory of their delivery.

Dr. J. Bond Littig was born in Baltimore County, Md., May 4, 1840. He graduated from the Baltimore Dental College in 1861 and practiced dentistry in New York City continuously from 1862 till he died. He married Marion G. Downer at Dorchester, Mass., in 1871. He is survived by his widow and three daughters, Harriet B., Mary L., and Marion D., now Mrs. Wm. M. Tuttle.

At the time of his death Dr. Littig had been Professor of Prosthetic Dentistry for about thirty-six years in the New York College of Dentistry. His long experience as a teacher, coupled with the fact that he had kept pace with the advance of modern methods of pedagogics, gave him such a value as a teacher that his loss to the College must be keenly felt.





## John I. Hart, D.D.S.

The sudden and wholly unexpected death of Dr. John I. Hart caused one of the greatest shocks which the dental profession of the metropolitan district has suffered in many years. For twenty-four hours after his demise, the telephones between New York, Brooklyn and New Jersey cities were in constant use, transmitting the sad news, a fact which attests to his great popularity among his confreres.

Dr. Hart had been enjoying good health, except for a slight intestinal disturbance a few days before his death, from which, however, he had fully recovered. He had attended a dental meeting in Massachusetts and had only just returned home, when on Sunday he arose to find the day so fine that he elected to spend the morning enjoying a ride in the Park. He returned and dined with his family, and then went into his office to write a few letters. These he himself took out to post, and coming back told his wife that he had a little matter to care for in his office, and again repaired thither. Later the sound of a falling body reached Miss Hart's ears, and she went down and was horrified to discover Dr. Hart lying face downward on the floor. A physician was hastily summoned, but he died a few minutes later, of heart failure. The Doctor literally died at his work, for when discovered he had a small plaster cast in one hand and a carving instrument in the other.

Mrs. Hart has presented to the College his entire professional equipment, and his operating room has been photographed, so that as nearly as possible it may be reproduced, though in a larger room, in the new college building, where it will be known as the John I. Hart Clinic Room, and will be reserved for special demonstrations.

Dr. John I. Hart was the son of Harriet and Benjamin I. Hart, and was born August 7, 1865, in New York City. He graduated from Columbia Grammar School, in the class of 1881. He also attended school in London, England. Became a dental student under Dr. M. L. Chain, and later entered the New York College of Dentistry, from which he was graduated in 1887. He was the youngest in his class, yet took the highest honors, receiving the gold medal. He at once started independent practice.

He became a member of the more important local societies, and also joined the State and National bodies. He was president for two terms of the First District Society; president for two terms of the Odontological Society; treasurer of the Dental Society of the State of New York for several years; vice-president and then president for two years. He was vice-president of the National Dental Association for



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one term, and at the time of his death was President of the National Association of Dental Faculties. He was also a member of the Federation Dentaire International, also a member of the Interstate Dental Fraternity, of which he was vice-president for New York, and likewise a much beloved member in Delta Sigma Delta, all members of which brotherhood will mourn his loss.

Somewhere behind the veil which obscures the future, we must meet again, Brother Hart, for such love as you inspired must be immortal.

DELTA SIGMA DELTA.

### **Dr. L. L. Lessler.**

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Resolved, That in his death this Association has lost an efficient member and an esteemed worker for the promotion of dental standards and education.

Resolved, That we extend to his family our sincere sympathy and assure them of our admiration for his high personal and professional qualities.

Resolved, That these resolutions be spread on the records of the Association and a copy sent to the family of our departed member, and copies forwarded to the dental journals for publication.

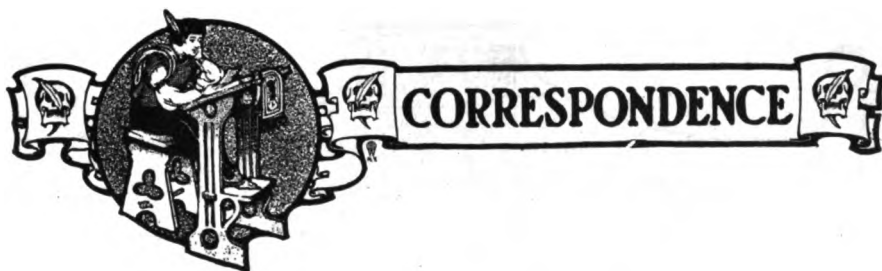
G. C. MARLOW, President.

C. W. COLLOVER, Secretary.

Southern Wisconsin Dental Association.

Lancaster, Wis.





### Formula for an Investment.

Chicago, Ill., June 14, 1907.

ITEMS OF INTEREST,

New York, N. Y.

Dears Sirs:

The following formula for compounding an investment plaster for every department of the dental laboratory will be found to fill every practical requirement:

Good ordinary dental plaster, by measure.....2 parts.

Pulverized mica (mica flour), by measure.....1 part.

Marble dust (pulverized fine), by measure.....1 part.

Mix carefully and thoroughly to insure a uniformity of the mass.

Mica flour (pulverized mica) may be obtained from the United States Mica Mining and Milling Company, of Micanite, Colorado.

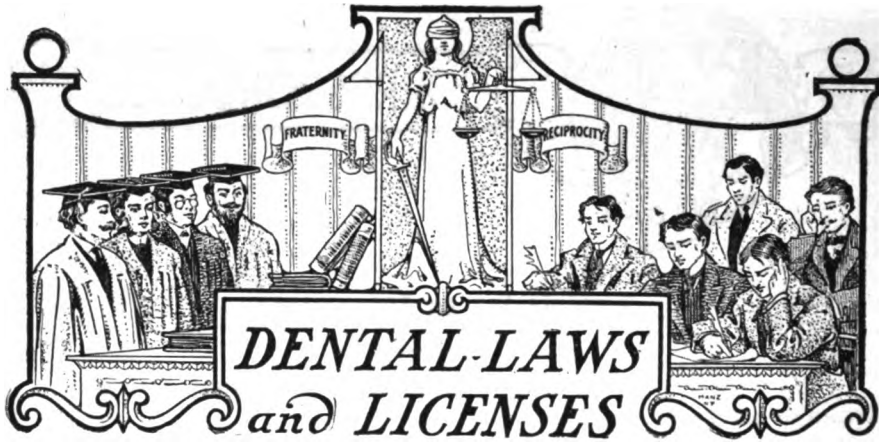
This formula is the result of my own experiments. I have been using it exclusively in my own laboratory over a year.

Yours very truly.

H. S. CROSS, D.D.S.







## Requirements for Licenses and Dates of Examinations.

Secretaries of State Boards are requested to keep us constantly posted in regard to dates and places of examinations or changes in their laws that this department may be kept up to date.

**Alabama.** Examination required, with or without diploma. Examination fee \$10. No special examination granted to practitioners already in practice. No interchange of license with any States. Examinations annually on the Monday before the second Tuesday in May of each year. Secretary, Dr. Thomas P. Whitby, Selma, Ala.

**Arizona.** Examination fee \$25. Secretary, Dr. W. P. Sims, Bisbee, Ariz.

**Arkansas.** Examination with or without diploma; applicants must attain an average of 75 per cent. to pass. Examination fee \$5. No special examination granted to practitioners already in practice; no temporary licenses. Oklahoma reports interchange with Arkansas, but the secretary of Arkansas reports no interchange as yet. Secretary, A. T. McMillan, Fifth and Main Streets, Little Rock, Ark.

**California.** Examination required with or without diploma. Examination fee \$25. No special examination granted to practitioners already in practice. No interchange of license with any States. In the even years the summer examination will be held in San Francisco, beginning the second Monday in June, followed



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by an examination in Los Angeles the third Monday in June. In the odd years the summer examination will be held in Los Angeles beginning the second Monday in June, followed by one in San Francisco beginning the third Monday in June. The winter examination will be held in San Francisco beginning on the second Thursday of December of each year. Secretary, C. A. Herrick, Jackson, Amador County, Cal.

**Colorado.** Examination granted to holders of diploma only. Examination fee \$10. No special examination granted to practitioners already in practice. No interchange of license with any States. Examinations first Tuesday of June and December, at Denver. Secretary, Dr. M. S. Fraser, 407 Mack Building, Denver, Colo.

**Connecticut.** Applicant for examination must have diploma, or must have had five years' instruction from a licensed dentist, or three years' practice as a legally qualified dentist. Examination fee \$25. A special clause permits reciprocal interchange of licenses in accordance with the Asheville resolution. Recorder, G. M. Gilbert, 783 Main Street, Hartford, Conn.

**Delaware.** Examination and diploma required in all cases. Examination fee \$10; \$1 for certificate. All applicants for certificates come under the same conditions. No interchange of license with any other States. Examinations first Wednesday in January, April, July, and October. Place of meeting given when applicant writes for the information. Secretary, C. R. Jefferis, New Century Building, Wilmington, Del.

**District of Columbia.** Examination with or without diploma. Examination fee \$10. Reciprocal interchange of license with the State of New Jersey in accordance with the provisions of the Asheville resolution. Secretary, Dr. S. G. Davis, 607 13th Street, Washington, D. C.

**Florida.** Examination required with diploma. Examination fee \$10. No special examination for practitioners already in practice. Secretary, W. G. Mason, Tampa, Fla.

**Idaho.** Examination required with or without diploma. Examination fee \$25. No special examination granted to practitioners already in practice. No interchange of license with any State. Secretary, C. E. M. Loux, Pocatello, Idaho.

**Illinois.** Examination required with or without a diploma. Examination fee \$20. License fee \$5. No special examination required for practitioners already in practice. No interchange of licenses with any other State. Examinations



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twice each year, usually in May and October. Secretary, Dr. J. G. Reid, 67 Wabash Avenue, Chicago, Ill.

**Indiana.** Applicants for examination must possess diploma from recognized college or must have had five years' dental practice under a reputable practitioner of this State. Examination fee \$20. No special examination granted to practitioners already in practice. Reciprocal interchange of license with the State of New Jersey in accordance with the provisions of the Asheville resolution. Secretary, Dr. F. R. Henshaw, Middletown, Ind.

**Iowa.** Examination required with diploma. Examination fee \$20. No special examination granted to practitioners already in practice. No interchange of license with any States. Secretary, Dr. E. D. Brower, Le Mars, Ia.

**Kansas.** No examination required if applicant has a diploma from a reputable college; otherwise examination required. Examination fee \$10. No special examination granted to practitioners already in practice. No interchange of license with any States. Secretary, Dr. M. I. Hults, Hutchinson, Kan.

**Kentucky.** Examination required with diploma. Examination fee \$20. No special examination granted to practitioners already in practice. No interchange of license with any States. Examinations first Tuesday in June and December in Louisville. Secretary, Dr. C. R. Shacklette, 628 Fourth Avenue, Louisville, Ky.

**Louisiana.** Examination required with diploma. Examination fee \$25, payable in advance. No special examination granted to practitioners already in practice. No interchange of license with any States—Board has the matter under consideration. Examinations twice annually in New Orleans, first examination on the day following the commencement exercises of the New Orleans College of Dentistry. Second examination occurs on the first Tuesday after the third Monday in October. Secretary, treasurer, and attorney, L. A. Hubert, 137 Corondelet Street, New Orleans, La.

**Maine.** Examination required with or without diploma. Examination fee \$20. No special examination granted to practitioners already in practice. No interchange of license with any States. Secretary, Dr. Dana W. Fellows, Portland, Me.

**Maryland.** Examination required with diploma. Examination fee \$10. No special examination granted to practitioners already in practice. No interchange of



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license with any State. Examinations occur twice annually in Baltimore. Secretary, F. F. Drew, 701 N. Howard Street, Baltimore, Md.

**Massachusetts.** Examination required with or without diploma. Examination fee \$20 for first examination, subsequent examinations \$5. No special examination granted to practitioners already in practice. No interchange of license with any States. Hereafter candidates for second and subsequent examinations will be required to fill out an application blank and forward it to the secretary. Every candidate for examination must be twenty-one years of age. Application blanks may be obtained from the secretary. Temporary licenses are never granted. The fee for third and subsequent examination is \$5.00. Secretary, Dr. G. E. Mitchell, Haverhill, Mass.

**Michigan.** Examination required with or without diploma. Examination fee \$10. Practitioners already in practice may have a special examination before any member of the Board which will enable him to practice until the next regular meeting of the Board, when a regular examination must be taken. Reciprocal interchange of license with New Jersey in accordance with the provisions of the Asheville resolution. Secretary, Dr. E. A. Honey, Kalamazoo, Mich.

**Minnesota.** Diploma must be presented from a dental college in good standing or satisfactory evidence must be given of having been engaged in the practice of dentistry as early as April, 1879. Examination fee \$10. No special examination granted to practitioners already in practice, and the Board has no power to grant temporary license of any kind. No interchange of license with any States. Examinations first Tuesday in April and October. Held at Dental Department of the State University at Minneapolis. Secretary, C. H. Robinson, Wabash, Minn.

**Mississippi.** Examination required with or without diploma. Examination fee \$10. Practitioners already in practice will be granted an examination by any member of the Board, who is authorized to issue a temporary license which will be valid until the next succeeding meeting of the Board. Only one temporary license shall ever be issued to the same applicant. Examinations third Tuesday in May of each year. Secretary, Dr. P. P. Walker, Brandon, Miss.

**Missouri.** Examination with diploma or certificate. Examination fee \$10. No special examination granted practitioners already in practice. There is an annual license fee of \$1.00, which, if not paid, registration becomes forfeited.



## ITEMS OF INTEREST

No interchange of license with any States. Secretary, S. C. A. Rubey, Clinton, Mo.

**Montana.** Examination with or without diploma. Examination fee \$25. No special examination granted to practitioners already in practice. No interchange of license with any States. Secretary, D. J. Wait, Helena, Mont.

**Nebraska.** Examination required with or without diploma. Examination fee \$25, except to Nebraska graduates fee is \$10. No special examination granted to practitioners already in practice. No interchange of license with any States. C. F. Ladd, Lincoln, Neb.

**Nevada.** Examination required of all graduates. Examination fee \$25. No special examination granted to practitioners already in practice. No interchange of license with any States. Secretary, C. A. Coffin, Reno, Nev.

**New Hampshire.** Examination required with or without diploma. Examination fee \$10. No special examination granted to practitioners already in practice except by agreement of the full Board. No interchange of license with any States. Secretary, A. J. Sawyer, Manchester, N. H.

**New Jersey.** Applicant must be a graduate of a reputable dental college in the United States and hold a high school diploma or a certificate from the State superintendent of public instruction, Professor Baxter, Trenton, N. J. No foreign diplomas accepted by the board. Examination fee, \$25. Reciprocal interchange of license with Utah, Tennessee, Iowa, Indiana, Michigan, Vermont, District of Columbia and New York, in accordance with the provisions of the Asheville resolution. Practical and theoretical examination of the board all completed in Trenton, N. J., at the State House. Two examinations each year, July and December. Secretary, Dr. Charles A. Meeker, 29 Fulton Street, Newark, N. J.

**New Mexico.** Examination required with or without diploma. Examination fee \$25. Fee for certificate \$5. All licensed dentists within the Territory shall on or before the first day of June of each year register with the secretary of the board, and shall pay therefor an annual fee of \$3. No special examination granted to practitioners already in practice. No interchange of license with any States. Secretary, C. N. Lord, Santa Fe, N. M.

**New York.** Diploma from a registered school is necessary for admission to the dental licensing examination. Applicants who have had six years' practice in dentistry may on unanimous recommendation of the Board receive a license



## ITEMS OF INTEREST

to practice in this State provided they meet the necessary professional and preliminary requirements. Examination fee \$25. Reciprocal interchange of license with New Jersey and Pennsylvania. Chief, Charles F. Wheelock, Examinations Division, New York State Education Department, Albany, N. Y.

**North Carolina.** Examination with or without diploma. Examination fee \$10. No special examination granted to practitioners already in practice. Secretary, R. H. Jones, Winston-Salem, N. C.

**North Dakota.** Examination required with or without diploma. Examination fee \$10; additional fee for license, \$5. No special examination granted to practitioners already in practice. No interchange of license with any States. Examination, second Tuesday in July. Secretary, H. L. Starling, Fargo, N. D.

**Ohio.** The Board will register without examination all graduates of the Ohio colleges who made proper application and paid the required fee of \$10 prior to the June, 1905, session of the Board; all other applicants must be graduates and pass examination before they can practice legally in Ohio. Examination fee \$20; registration fee \$10. There is an exemption clause which permits the Board to register a person who has been in practice in the State of Ohio continuously since January 1, 1903; this must be verified by evidence. Application should be filed with the secretary ten days prior to examination. Secretary, H. C. Brown, 185 East State Street, Columbus, Ohio.

**Oklahoma.** Examination required with or without diploma. Examination fee \$25. No special examination granted to practitioners already in practice. Reciprocal interchange of license with Arkansas. Secretary, A. C. Hixon, Guthrie, Okla.

**Oregon.** Examination required with diploma. Examination fee \$10. No special examination granted to practitioners already in practice. No interchange of license with any States. Examination in November, in Portland. Secretary, O. D. Ireland, 614 Dekum Building, Portland, Ore.

**Pennsylvania.** Examination required with diploma. Examination fee \$15. No special examination granted to practitioners already in practice. Reciprocal interchange of license with New York. Secretary, C. N. Schaeffer, Harrisburg, Pa.

**Rhode Island.** Examination in all cases. Examination fee \$20. No special examination granted to practitioners already in practice. In regard to interchange the



## ITEMS OF INTEREST

Board has recommended an amendment to the law giving the board discretion. Secretary, W. S. Kenyon, 301 Westminster Street, Providence, R. I.

**South Carolina.** Examination with diploma. Examination fee \$15. No special examination granted to practitioners already in practice. No interchange of license with any States, but is not opposed to a satisfactory plan of exchange. Secretary, Dr. B. Rutledge, Florence, S. C.

**South Dakota.** Applicants for examination must have diploma or must have had three years' practice immediately preceding examination. Examination fee \$10; license fee \$5. No special examination granted to practitioners already in practice. No interchange of license with any State. Secretary, G. W. Collins, Vermillion, S. D.

**Tennessee.** Registers diploma without examination and examines all others. Examination fee \$5. No special examination granted to practitioners already in practice. Reciprocal interchange of license with New Jersey, in accordance with the provision of the Asheville resolution. Secretary, F. A. Shotwell, Rogersville, Tenn.

**Texas.** Examination required in all cases. Examination fee \$25. Temporary licenses granted to holders of diplomas between meetings of the Board; good until the following meeting. Temporary licenses granted to others after an examination by any member of the Board. Good until the next meeting of the Board. Fee for temporary license \$2. Secretary, C. C. Weaver, Hillsboro, Texas.

**Utah.** Examination required with or without diploma. Examination fee \$25. No special examinations granted to practitioners already in practice. Reciprocal interchange of license with New Jersey in accordance with the provisions of the Asheville resolution. Examination not yet fixed. Usually April and October. Secretary, H. W. Davis, 511-513 McCormick Block, Salt Lake City, Utah.

**Vermont.** Examination required in all cases. Examination fee \$25. No special examination granted to practitioners already in practice. Board is empowered to make interchange of license, in accordance with the Asheville resolution. Interchanges with New Jersey. Secretary, G. F. Cheney, St. Johnsbury, Vt.



## ITEMS OF INTEREST

**Virginia.** Examinations required with or without diploma. Examination fee \$10. No special examination granted to practitioners already in practice. No interchange of license with any State. Secretary, R. H. Walker, Norfolk, Va.

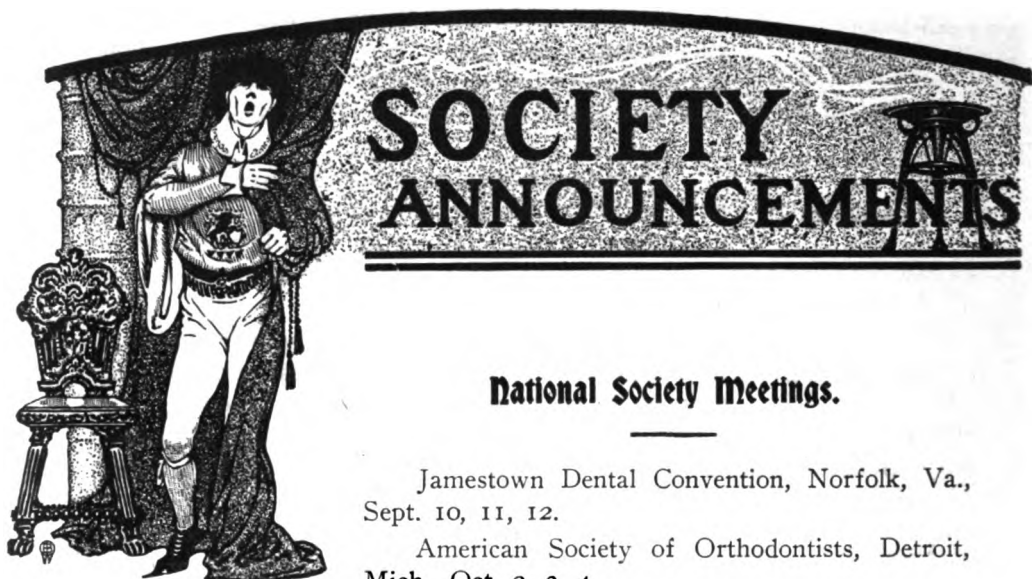
**Washington.** Examination required with diploma. Examination fee \$25. No special examination granted to practitioners already in practice. No interchange of license with any States. Examinations in May and November. Secretary, C. S. Irwin, Vancouver, Wash.

**West Virginia.** [ ] Examination required with or without diploma. Examination fee \$10. No special examination granted to practitioners already in practice. No interchange of license with any State. Application blanks and all necessary information furnished by the secretary. Secretary, H. M. Van Voorhis, Morgantown, W. Va.

**Wisconsin.** Examination required with diploma. Examination fee \$10. Dentists who have practised for four years or have been apprenticed to a reputable dentist for five years are entitled to examinations. No special examination granted to practitioners already in practice. No interchange of license with any State. Secretary, J. J. Wright, 1218 Welles Building, Milwaukee, Wis.







### **National Society Meetings.**

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Jamestown Dental Convention, Norfolk, Va.,  
Sept. 10, 11, 12.

American Society of Orthodontists, Detroit,  
Mich., Oct. 2, 3, 4.

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### **State Society Meetings.**

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Northeastern Dental Association, Portland, Me., Oct. 16, 17 and 18.  
Virginia State Dental Association, Jamestown, Sept. 10, 11, 12.

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### **Jamestown Dental Convention.**

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The essayists of the meeting are as follows: Professor W. D. Miller, of Berlin, Germany, subject, "Demonstrations of Preparation Relating to the Wasting (so-called erosion) of the Teeth;" Dr. Chas. L. Alexander, Charlotte, N. C., subject, "Gold Inlays;" illustrated paper by Dr. F. T. Van Woert, Brooklyn, subject, "Is the Cemented Filling the Filling of the Future?" Dr. R. Ottolengui, New York, subject, "The Purposes and Accomplishments of Modern Orthodontia."





## **Transportation Rates to the Jamestown Dental Convention.**

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The following rates to the Exposition have been made by the transportation lines: Season tickets, 80 per cent. of double one way; sixty-day ticket, one and one-third fare, plus 25 cents; ten-day ticket, one and one-third fare, plus \$2.25. These rates will probably be lessened, or if not, there are likely to be special excursions from all parts of the country and Canada at low rates.

The following places of interest can be visited as side trips: Jamestown Island, \$1.00; Yorktown, \$1.00; Williamsburg, \$1.95; Washington, \$3.50; Baltimore, \$5.00; New York, Old Dominion Steamship Co., \$13.00 round trip; Philadelphia, rail, \$9.00 round trip; Richmond, \$3.50 round trip.

H. W. CAMPBELL, Secretary.

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## **Northeastern Dental Association.**

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The thirteenth annual meeting of the Northeastern Dental Association will be held in the city of Portland, Maine, Hotel Lafayette, on October 16, 17 and 18, 1907. Preparations are being made for a valuable and instructive meeting.

Cambridge, Mass.

EDGAR O. KINSMAN, D.M.D.,  
Secretary.

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## **Union of Three State Societies.**

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State dental associations of Washington, Oregon and California will be consolidated at the annual meeting to take place in Spokane, Wash. Former President Cutler, of the Washington Association, has been appointed a committee of one to arrange for the unification, the plan of which is to endeavor to promote uniform dental laws and thus make certificates interchangeable between the three States. These officers were elected at the session at Seattle: President, Dr. R. A. Monroe, Spokane; secretary, A. S. Oliver, Spokane; first vice-president, Dr. J. K. Appleby, Everett; second vice-president, Dr. Lizzie C. Stuart, Seattle; treasurer, Dr. S. L. Monk, Montesano.

There are three vacancies in the Board of Dental Examiners, and among the candidates proposed to fill the vacancies are Dr. J. W. Dunning and Dr. R. E. Shanks, of Spokane.

AUGUST WOLF.





### **Illinois State Dental Society.**

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The Illinois State Dental Society held its forty-third annual meeting at Quincy, May 14 to 17, 1907. The following officers were elected for the ensuing year: President, W. A. Johnston, Peoria, Ill.; vice-president, Henry L. Whipple, Quincy, Ill.; secretary, Arthur D. Black, Chicago, Ill.; treasurer, C. P. Pruyn, Chicago, Ill.; librarian, J. T. Cummins, Metropolis, Ill.

The 1908 meeting will be held at Springfield, May 12, 13, 14 and 15.

ARTHUR D. BLACK, Secretary.

31 Washington Street, Chicago, Ill.

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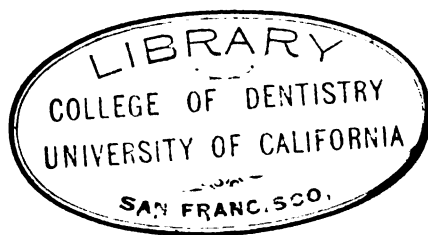
### **National Association of Dental Salesmen.**

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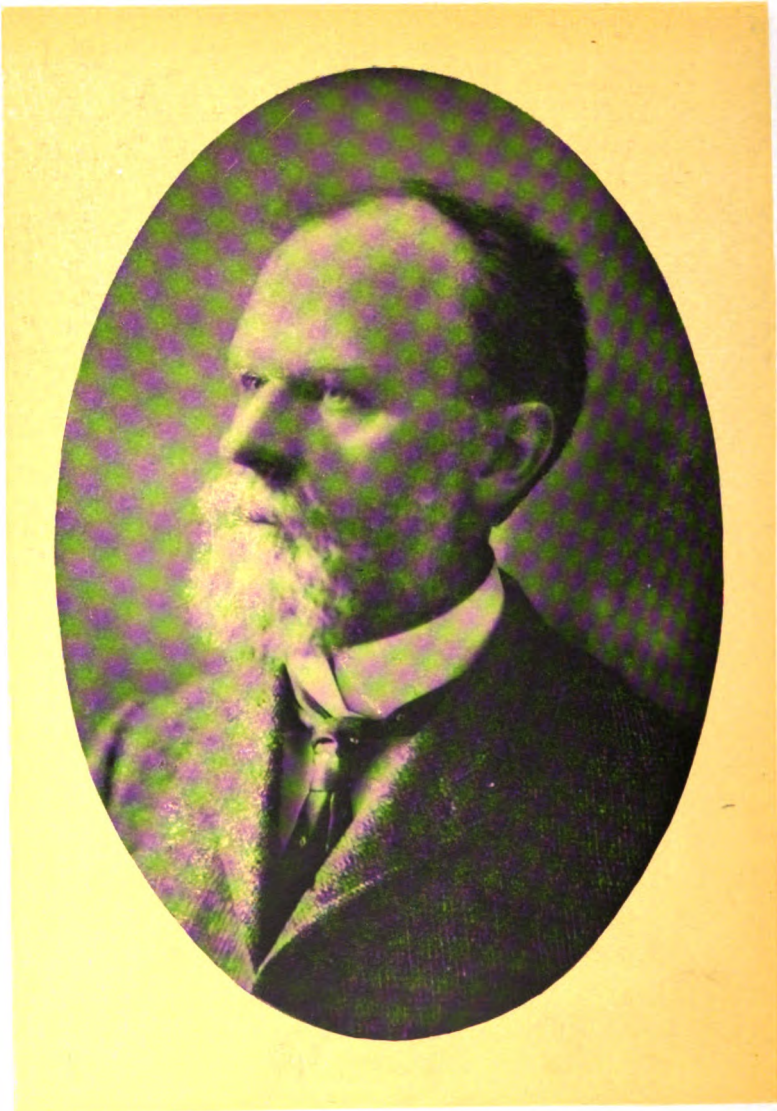
The New York Branch of the National Association of Dental Salesmen held their first annual banquet at the Hotel St. Denis, Broadway and Eleventh Street, New York City, Thursday evening, June 6th. The guests and speakers of the evening were the heads of the several dental houses in and about New York, namely: Mr. C. A. C. Kelly, of Buffalo, N. Y.; Mr. W. Sykes, of Ash & Sons; Mr. A. H. Bultman, of Consolidated Dental Mfg. Co.; Mr. H. A. Curtis, of Consolidated Dental Mfg. Co.; Mr. Slaight, of Parkington & Slaight; Mr. Rossig, of Eckley Dental Supply Co.; Mr. Herman, of the Dentists' Supply Co.; Dr. Clapp, of the Dentists' Supply Co.; Dr. Frame, of the Columbus Dental Mfg. Co.; Messrs. Osmun & Cook, of Newark, N. J.

It was moved and seconded that Mr. Fred J. Starr was to be sent to represent the New York Branch at the National Association of Dental Salesmen's meeting to be held at Pittsburg in July. After a very harmonious and enjoyable evening, which everybody seemed to appreciate, the feast came to a close to be resumed at their next regular meeting in September.

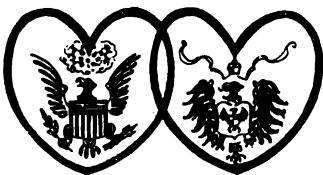








W. D. Miller.







## **The Principles and Practice of Filling Teeth with Porcelain.\***

By DR. JOHN Q. BYRAM, Indianapolis, Ind.

### **Approximo-Incisal Cavities.**

Approximo-incisal cavities may be divided into two classes: Approximo-incisal cavities involving but a small portion of the incisal angle and where no step is required for retentive resistance; and approximo-incisal cavities involving enough of the incisal angle to require a step for additional retentive resistance.

### **Preparation of Cavities Without a Step.**

The gingival margins should be slightly concave in a labio-lingual direction (Fig. 20 A). This gives the shortest possible bevel to the porcelain in the linguo-gingival region, thereby insuring less liability to fracture. The labial margin should be cut laterally far enough in the gingival region to avoid a frail margin of porcelain; it should unite with the gingival margin in the form of a curve and extend incisally in the form of a straight line (Fig. 21 A). The labial margin should run at right angles to the curve of the segment of the circle formed on the surface (Figs. 9 C and 17 B). The lingual margin should extend from the gingival wall to the incisal edge in a straight line, and it should be cut as far laterally as

\*Copyright 1907, by Consolidated Dental Manufacturing Co.



## ITEMS OF INTEREST

the labial margin. This margin by being sufficiently extended in a gingival direction, should involve enough of the gingival ridge to provide for a thick mass of porcelain in this location (Fig. 21 B).

### **Formation of the Cavity.**

The gingival wall should be slightly grooved and should form a right angle with the pulpal wall; it should extend far enough rootward to protect the gingival margin. A shallow groove should be cut from the labial to the lingual wall, but care is to be taken that this groove

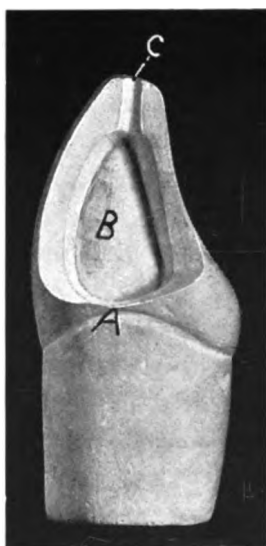


FIG. 20.

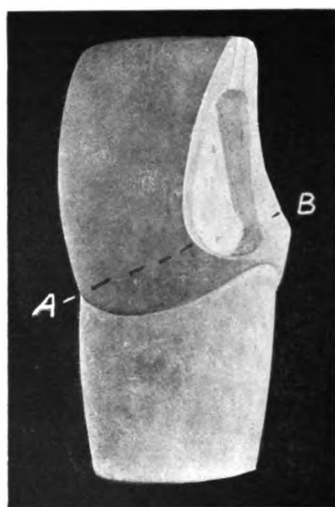


FIG. 21.

should not interfere with the withdrawal of the matrix (Fig. 16 A). A triangular cavity should then be cut between the labial and lingual walls, extending from the gingival to the incisal wall (Fig. 20 B). The labial and lingual walls should slightly diverge toward the margins, and the incisal wall should form a slightly obtuse angle with the pulpal wall, which should be convex so that the pulp in deep cavities may be protected. The cavity should be as deep as the pulp of the tooth will permit.

### **Technique of Cavity Formation.**

The enamel should be removed with chisels and knife-edge stones. After the enamel margins have been properly formed, the triangular cavity should be cut in the dentine between the labial and lingual walls (Fig. 20 B), with the special hoe excavator (Fig. 6 B). In order to break the straight line of cement a shallow groove



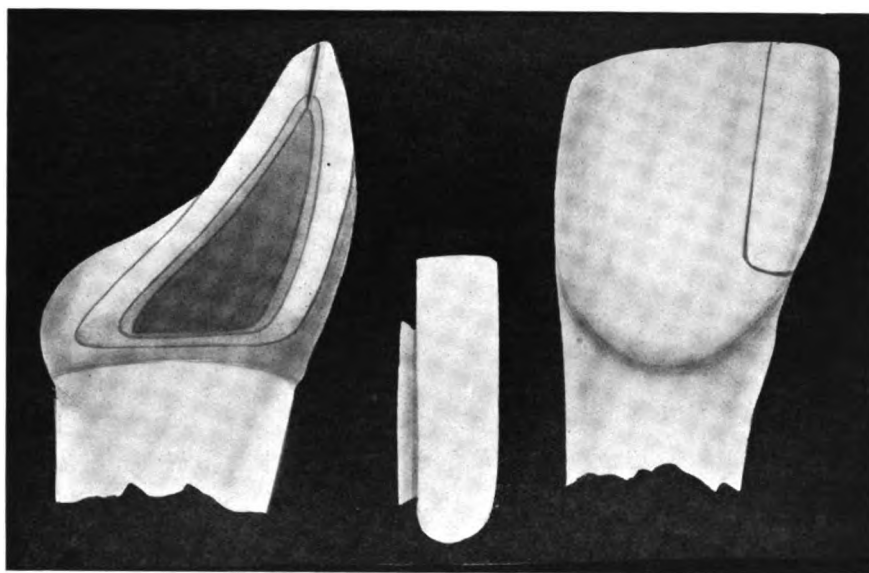


FIG. 22.

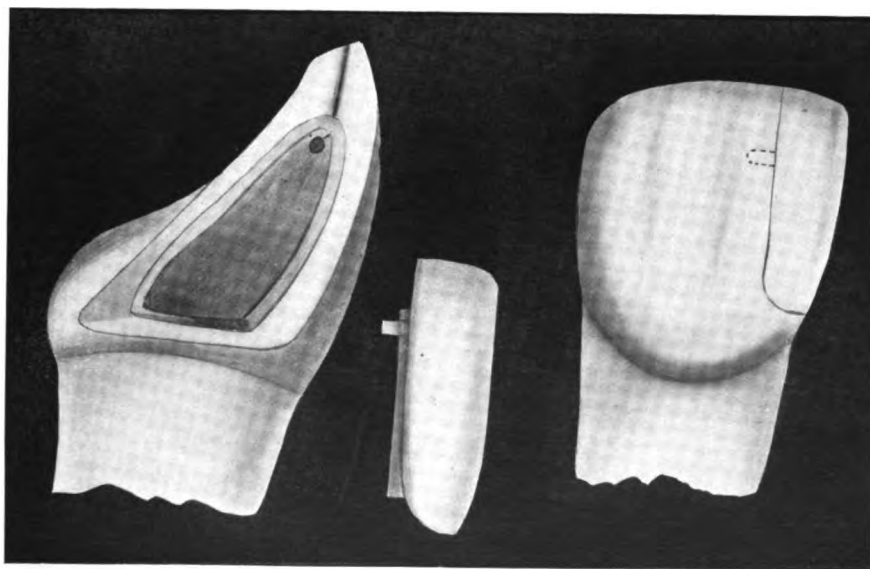


FIG. 23.



## ITEMS OF INTEREST

should be formed, with a fissure bur, extending from the incisal wall of the cavity to the incisal edge, between the labial and lingual enamel plates (Fig. 20 C). After the cavity has been prepared the margins of the cavity should be properly finished with sharp chisels, finishing burs, and Arkansas stones.

After the inlay has been constructed, a very shallow groove should



FIG. 24 A.



FIG. 24 B.

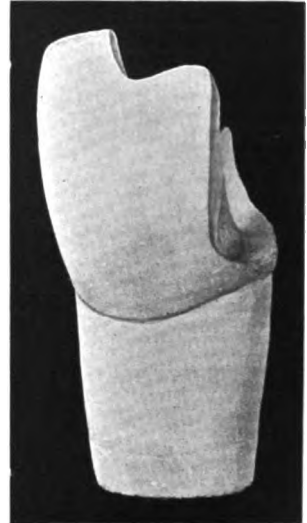


FIG. 24 C.

be made along the labial and lingual walls at their union with the pulpal wall, and a slight concavity should be made in the dentine of the incisal wall. Grooves should be formed along the walls of the ridge of the inlay which fits in the cavity. When the inlay is cemented into position, this gives it something of a mortised form of retention (Fig. 22).

In case only a shallow cavity can be cut between the labial and lingual walls, and more retentive resistance than this would yield is required, a hole, two mm. deep, running at right angles to the axis of the tooth, may be drilled between the enamel plates and as far from the incisal edge as the pulp will permit (Fig. 23). A threaded pin from three to four mm. long No. 19 gauge platinum wire is then inserted through and attached to the matrix. The pin becomes an integral part of the inlay, and may give the necessary retentive resistance in many cases. This method can not be used, however, unless sufficient space can



be secured for the insertion of the inlay. It is also contraindicated in those teeth, whose enamel plates are thin; for the resistance from the enamel plates or the porcelain would not be sufficient to retain the inlay, and the reflection from the platinum pin would affect the color of the enamel and the porcelain. The author believes that this method of cavity preparation is a poor one and questions the advisability of its use.



FIG. 25.

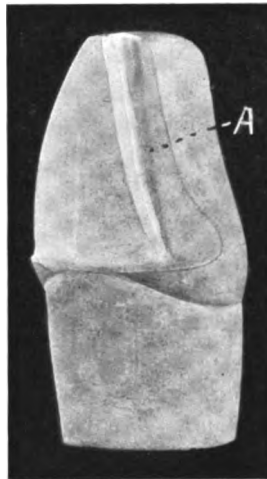


FIG. 26.

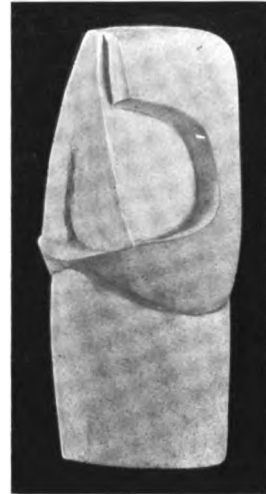


FIG. 27.

### **Approximo-Incisal Cavities With Steps.**

#### **Marginal Outline.**

The labial margin may extend from the gingival wall to the incisal edge in the form of a straight line (Fig. 24 A), or it may extend from the gingival margin to the incisal third in the form of a straight line, then extend laterally in the form of a curve (Fig. 24 B and C).

#### **Preparation of the Cavities.**

Since the necessity for retentive resistance increases in proportion to the increased width of the inlay, a step should be made in large approximo-incisal cavities to resist the tipping stress. The method of cavity formation is, in a measure, dependent upon the method of step formation. Steps may be formed by involving additional area of the lingual surface. They may involve only the incisal third, they may extend from the incisal edge to the gingival wall, or they may involve the middle and gingival thirds. They may also be formed by involving both labial and lingual plates in the incisal third.



## ITEMS OF INTEREST

### Step in Cingual Surface Only.

A step may be formed involving only the lingual plate in the incisal third of those teeth with thick incisal edges (Fig. 25). It should involve at least one-half the thickness of the incisal edge and extend from three to four millimeters gingivally. The gingival wall of the step should form a right angle with the concavity of the lingual surface. A slight groove may extend along the approximo-labial angle of the step in order to give additional retentive resistance. This method of step preparation is considered unsafe for general usage. It



FIG. 28 A.

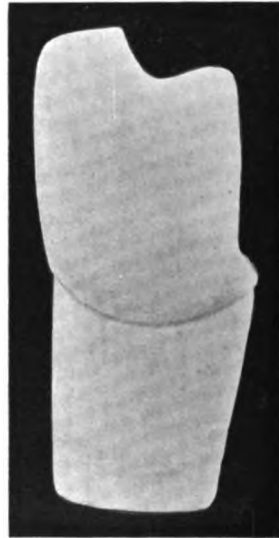


FIG. 28 B.

should never be used where great stress may be applied to the porcelain. The weak point of the inlay is at the union of the porcelain for the cavity and the step, and an undue amount of stress will cause it to fracture at this point.

In those cases in which the step extends from the incisal edge to the gingival wall this wall should be flat. The labial margin should unite with the gingival in the form of a curve and extend to the incisal edge in the form of a straight line. It should form a right angle with the mesio-distal curve of the labial surface. Enough of the labial wall should be involved to insure sound enamel supported by dentine, and it should be so prepared that it will form an obtuse angle with the pulpal wall. The lingual wall should extend laterally about two millimeters further than the



labial and should run parallel with it. The pulpal wall should be convex and form an acute angle with the pulpal wall of the step.

**Technique of  
Step and Cavity  
Preparation.**

After the frail walls of enamel have been removed with a chisel, a knife-edged carborundum should be used to remove the remaining enamel of the labial wall. A small narrow stone should then be used to grind the enamel on the lingual surface from the gingival wall to incisal edges. After the enamel has been partially



FIG. 28 C.



FIG. 29.

removed from the lingual surface, flat faced fissure and diamond burs in the right angle should be used to cut the enamel so that it will have proper marginal form and to remove enough of the dentine to give the step proper depth (Fig. 26). With a fissure bur in the straight handpiece the labial and pulpal walls should be so prepared that they will unite in the form of an obtuse angle. A shallow groove should run along the gingival wall. Another groove should be made at the union of the axial and pulpal walls of the step from the gingival wall to the incisal edge (Fig. 26 A).

Or a step may be prepared involving the middle and gingival thirds (Fig. 27). It should extend laterally far enough to give sufficient retentive resistance. The gingival and incisal walls which should unite with the



axial wall in curves should converge slightly toward the axial wall of the step. The pulpal wall of the step should be flat and should be so prepared that it will not interfere with the withdrawal of the matrix. The step should be as deep as the pulp will permit.

**Step in  
Labial and Lingual  
Surfaces.**

In all cases in which the enamel plates are thin in the incisal third, or in which there has been an extensive loss of the incisal angle, the step should involve both labial and lingual plates of the incisal edge (Fig. 28, A and B). This insures a stronger



FIG. 30.



FIG. 31.



FIG. 32.

mass of porcelain and greater protection to the enamel. It also prevents the cement from changing the color of the tooth by reflecting through the thin plate of enamel.

One of the weakest points of a porcelain inlay is the incisal margin. If the enamel is beveled so that it is protected by porcelain, the thin margin of porcelain which will be formed may be subjected to enough stress to cause it to fracture. If the enamel is not beveled so that it is protected, the enamel itself may fracture. In all cases in which it can be done, the author tries to form the axial margin of the step near the center of the tooth, thereby leaving the enamel rods running almost parallel with the axis of the crown.

A step involving the labial plate should be so prepared that enough



tooth structure is involved to give a mass of porcelain sufficiently strong to withstand the force of mastication, and to resist both vertical and lingual stress. The step should be cut across the incisal edge, extending from one and one-half to three millimeters; it should be from one and one-half to two millimeters deep on the labial surface (Fig. 28 C).

Fig. 29 shows a form of cavity preparation similar to Fig. 26, except that the step involves both labial and lingual plates. The labial plate should form a reverse curve with the axial margin of the cavity. Its margin should be so prepared that it will form a right angle with the inciso-gingival curve of the surface. The gingival and middle thirds of the step should be prepared similar to the preparation of the step for Fig. 26. The lingual plate of the axial wall of the step should be cut further laterally than the labial, or a shallow groove should be made between the two plates with a fissure bar. This breaks the straight surface formed in a labio-lingual direction, and thus assists in preventing the cement from washing from the joint for the entire width.

Figs. 30, 31 and 32 show methods of step preparation, which, in the author's opinion, give the best results in most cases in which there has been extensive loss of tooth structure. The labial and lingual margins of the step should form right angles with the gingivo-incisal curves of these surfaces. They should form reverse curves with the axial margins of the cavity. In those teeth with thick incisal edges, a shallow cavity may be cut between the labial and lingual plates when these plates are approximately the same length (Fig. 30). In teeth with their incisal edges, the lingual plate should be cut almost half the thickness of the incisal end, and should extend farther gingivally than the labial plate (Figs. 31 and 32). It should be so formed that its gingival wall will be at right angles to the concavity of the lingual surface. The axial-lingual plate of enamel of the step should be cut further laterally than the labial, or a shallow groove should be cut between the labial and lingual plates of the step.

The preparation of the cavities for Figs. 25, 30, 31 and 32 is as follows: The gingival wall should be concave labio-lingually, and it should run at right angles to the pulpal wall, and its margin should unite with the margins of the labial and lingual surfaces in such manner that it will be concave mesio-distally. Both the labial and lingual walls should be parallel. They should slightly converge toward the center of the tooth as they approach the incisal edge, and their margins should run at right angles with the curve of the surface. A triangular cavity should be cut between these walls, gradually diminishing in depth toward the incisal edge (Fig. 30). The labial and lingual walls of the cavity should unite with the pulpal walls in such a manner as to form slightly obtuse angles.



## ITEMS OF INTEREST

Lower incisors receive stress in a vertical and labial direction. In the preparation of step cavities in these teeth, where the step involves only the labial plate, it should be cut on the labial surface in the incisal third. This preparation is the reverse of that shown in Fig. 25. In case both labial and lingual plates are involved the preparation that is shown in Fig. 30 with such modifications as are necessary to resist the labial stress is indicated.

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### A Plea for Oxy-Chloride of Zinc.

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By DR. C. EDMUND KELLS, New Orleans, La.

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The editorial in the June issue has just been read, and I am amazed at the following sentence which occurs therein: "as well, perhaps, as the oxy-chloride of zinc, still used by some in root canals."

As a persistent user for thirty years of the oxy-chloride of zinc, I can not allow such a statement to pass unchallenged.

As a root filling, what material, I would ask, equals the oxy-chloride? This material sets without *any shrinkage*, is highly antiseptic, and a root canal which has been thus filled for twenty years may be extracted and split open and found sweet and clean.

Has the reader had any occasion to remove an oxy-phosphate filling of any size which has been *in situ* for a year or more? And if so, did he not find that it "smelled to heaven," as some one has expressed it? And, furthermore, did he not observe the condition under this *porous filling* worse than when it was inserted?

The oxy-chloride makes a dense, hard filling—as hard as adamant and *absolutely impervious*, and under the same conditions as just related, the conditions of the tooth would be found *improved*. These statements are beyond contradiction.

Now, at the end of thirty years' persistent use what do I find? If experience backed up by careful observation and full records count for anything, I find the following:

First.—That for partly erupted teeth in which faulty enamel formation is found and cavities exist at this early stage, nothing equals the oxy-chloride of zinc as a filling material. While it will not prove a durable filling, and must be carefully watched and renewed when necessary, the chloride of zinc has a chemical action upon the tooth substance *and for its good*.



Second.—In molars and bicuspid, which erupt with more or less large areas of *soft brown spots* in the enamel in which caries appears, all the discolored tissue need not be cut away, but only the cavity proper, and then filled with oxy-chloride of zinc, and the decay will be absolutely stopped for years.

Third.—Minute approximal cavities which occur in the incisors almost immediately after their eruption, and, in fact, often before they are completely erupted, may be preserved as *minute cavities* for years and years—twelve or fifteen—by the careful nursing with oxy-chloride of zinc fillings. Can such a result be obtained in any other way?

Fourth.—In very deep cavities it is not necessary to remove all the decay from the bottom. In these cases it is only advisable to remove what decay is absolutely necessary—*the margins of the cavity being made perfect*, a thick cream of oxide of zinc and creosote (Morson's) is floated over the remaining decay—and dried with spunk or paper and the cavity then filled with oxy-chloride of zinc. A year later that filling may be removed and a perfectly satisfactory condition *found beneath*.

The mummified decay may then be removed, two-thirds of the cavity be then filled with the oxy-chloride (with or without the creosote-cream, as may be advisable), and a thin veneer of gold or amalgam, as is deemed best, completes the operation.

Here is a real tooth saver. There may be some material of which I know nothing that will accomplish the above mentioned results, but it certainly is not the oxy-phosphate of zinc. The oxy-chloride forms a dense, hard, impervious and unshrinkable filling, and one which is conspicuously beneficial to the tooth substance *in contact with it*.

Hard as it is, the oxy-chloride is more or less soluble by the fluids of the mouth, and can be rarely looked upon as anything but a temporary treatment when exposed to the action of the saliva, though many exceptions to this are found, and I have very many fillings which are still perfect at the end of ten to fifteen years' use.







### **The Rotation of Molars.**

- (a) Methods of Rotating Malposed Molars.**
- (b) Prevention of Rotation when Used as Anchorage.**

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*Read before the American Society of Orthodontists.*

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Molars in torsal occlusion are not very common where teeth have not been extracted, and we more often find upper first molars in torsion than any of the others.

In the vast majority of cases the molar immediately distal to an extracted tooth, whether it be an upper or lower, drifts mesially and lingually and rotates at the same time (Fig. 1).

In Fig. 2 is shown the occlusal view of a case where the right lower first molar has been lost and the second molar has drifted forward to take its place without rotating. This may be due to the almost perfect occlusion (Fig. 3).

Where the lost organ is to be replaced by either fixed or removable bridge work, the prosthodontist, if he understands occlusion, will appreciate having this tooth properly aligned.

Previous to the thorough understanding of the importance of occlusion, the rotation of malposed molars was never attempted; and why should it be, for they did not show, and, as the esthetic effect was all that the orthodontist looked for, their attempts were usually confined to the upper front teeth.



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FIG. 1.

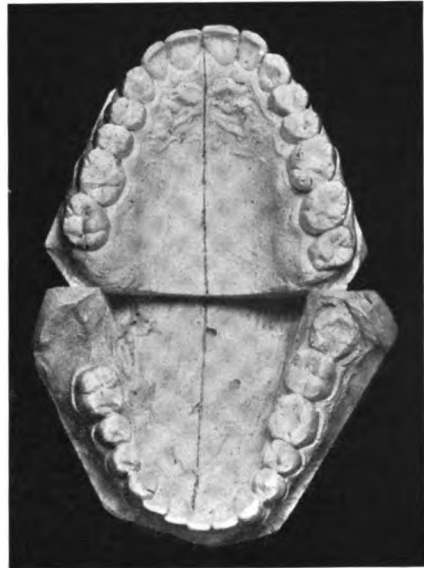


FIG. 2.

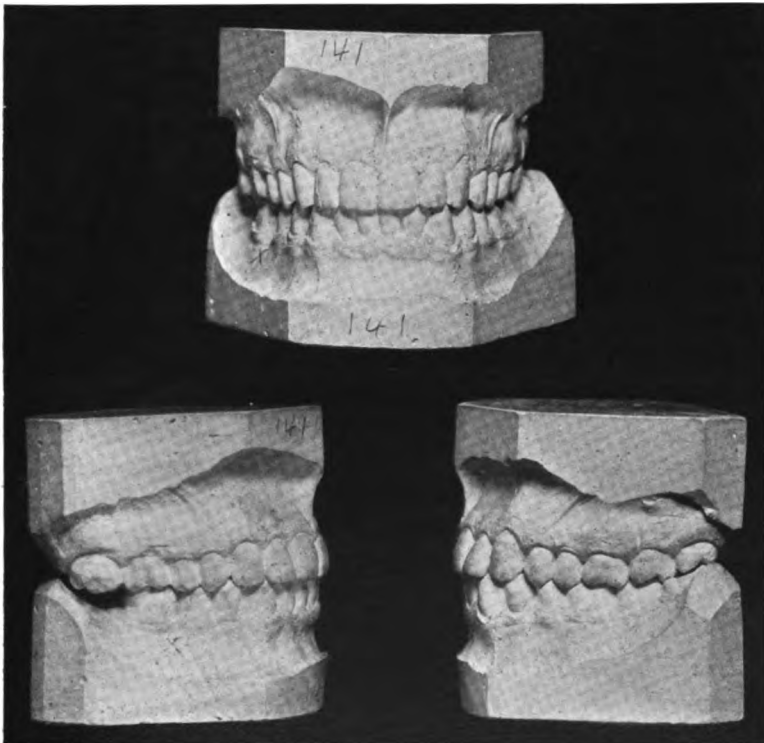


FIG. 3.  
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The molars most often found in torsal occlusion are the upper first, and they are usually found with the mesio-buccal cusp lingual to normal, and the disto-buccal cusp buccal in relation to the mesial cusp (Fig. 4). If we have the reverse of this position it would be a very simple matter to rotate them with the expansion arch alone.

Careful measurements show that an upper first molar in full torsal occlusion can usually occupy seven one-hundredths of an inch more space in the arch line than if normally placed. (By complete torsion is meant that the mesio-buccal corner of this tooth is in contact with the disto-approximal contact point of the second bicuspid, and the disto-lingual



FIG. 4.



FIG. 5.

corner is in contact with the mesio-approximal contact point of the second molar.) This holds good whether the molar measures thirty-seven or forty-eight one-hundredths of an inch in its mesio-distal diameter. It is not often, however, that we find these teeth in complete torsion.

When we realize that complete torsion of this tooth can be the cause of all the teeth anterior to it being misplaced one-quarter the mesio-distal diameter of a bicuspid, it must be obvious how essential it is to properly rotate it.

### **Previous Efforts at Rotation of Molars.**

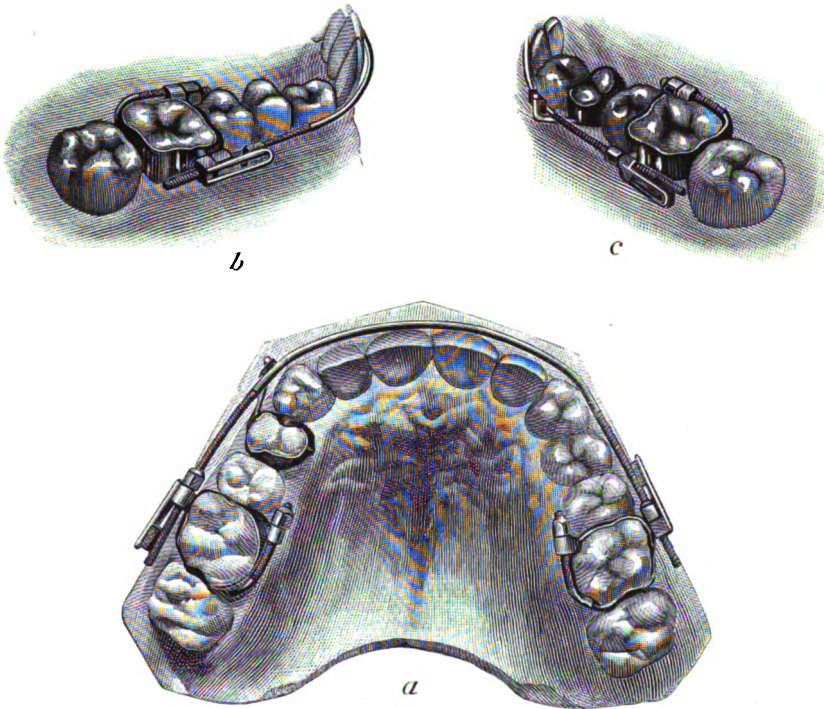
The first record that I can find relative to the rotation of molars is by the man who has written the most on the importance of the occlusion of the teeth as a basis for the correction of irregularities, namely, Dr. Edward H. Angle. In his sixth edition of *Malocclusion of the Teeth* he has explained his accomplishment of this movement by the use of the expansion arch alone. I have employed this method, sometimes with success, but more often with failure



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(Fig. 5). and these failures have prompted me to say something on this subject, feeling that it might be of interest.

At our last annual meeting Dr. Wm. O. Talbott, in a clinic, showed a device for rotating malposed molars, which at first seemed to meet all requirements, but personally I have not been very successful with it.



**FIG. 6.**

Dr. Talbot has kindly supplied me with a description of his appliance, in his own language, which I am pleased to quote as follows:

**Dr. Talbot's  
Appliance.**

"For rotating molars the appliance consists of a wire loop attached to a piece of short tubing on the buccal side of a clamp molar band (Angle's Band No. 2), used in conjunction with a threaded arch (Angle's Expansion Arch "E"), with separating rubber intervening between the loop and the arch (Fig. 6). The wire loop is made of gold spring clasp wire about 21 gauge, and should be three-eighths to one-half inch in length, the free ends of which are soldered to a short piece of tubing. These loops may be so attached to the tubing as to extend mesially



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or distally to the tooth to be rotated, as the case may require the mesio-buccal cusp or the disto-buccal cusp to be moved buccally. If the loop extends mesially (Fig. 6 B), it should be attached to the tube in such way as to allow the nut on the arch to pass easily between the loop and the molar band, and rest against the mesial end of the tube so as to support the arch, as shown in Fig. 6 B.

"If the loop extends distally to the tubing, the free ends of same should extend just mesially to the tube so as to lock the nut on arch and prevent its being rotated by the friction of the cheek (Fig. 6 C).

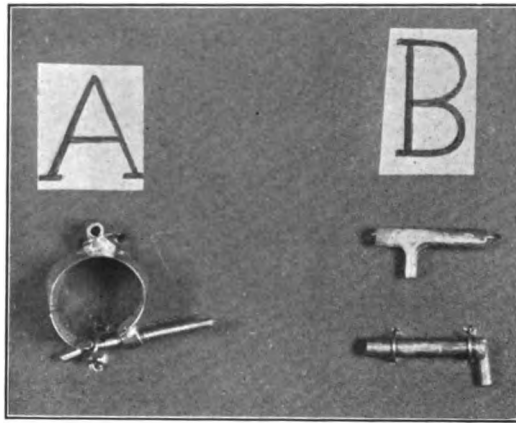


FIG. 7.

"The advantages of the wire loop over a flat spring are that it will hold the rubber better, it makes a better spring, and it is less irritating to the cheek.

"The piece of tubing should be one-eighth of an inch long, the thickness used for jackscrews, and sufficiently large in diameter to allow the arch to move freely when placed in it.

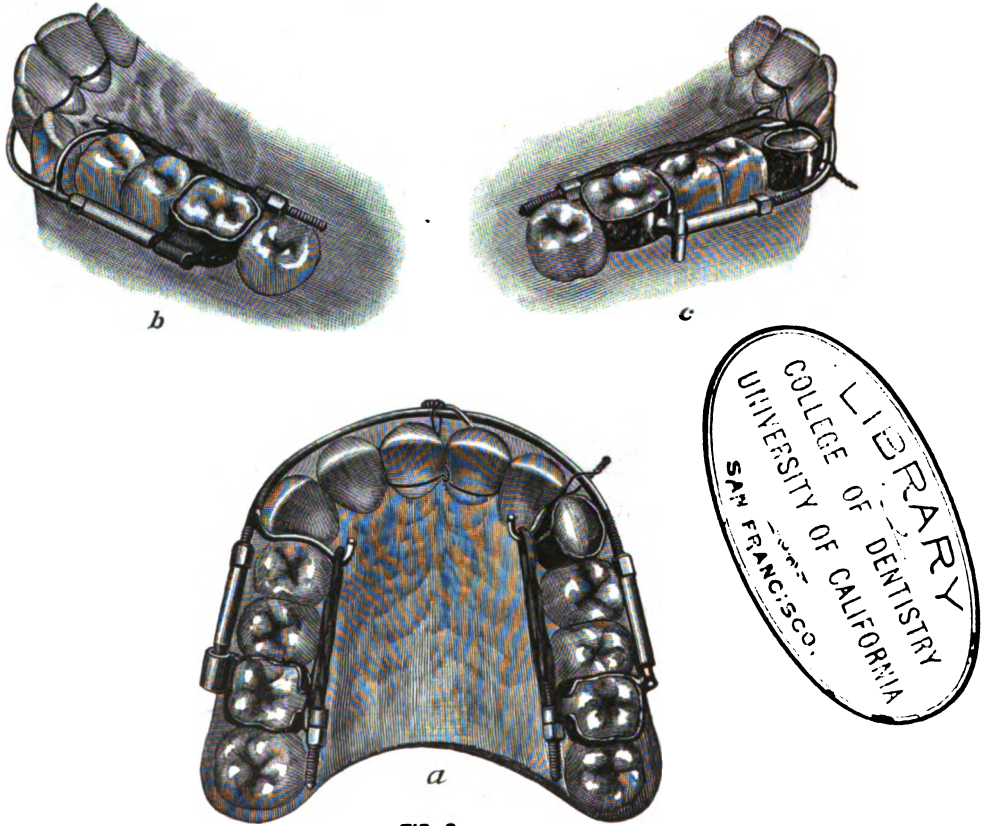
"This form of attachment is simple anchorage, and should not be used in cases requiring stationary anchorage on the molars, as when great pressure is put on the expansion arch in moving the anterior teeth. However, it is indicated in such cases, after the teeth have been aligned in the arch, if the molars should need rotation.

"For rotating bicuspid, a lever is made of round gold clasp wire, about gauge 21, shaped as shown in Fig. 6, A and C. One end is attached with hard solder to a band made to fit the tooth to be rotated.



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The band should be cemented to the tooth, and the lever allowed to extend mesially or distally, according to the direction of the rotation required, and rest on the buccal side of the expansion arch. Wedge rubber is used between the lever and the arch to produce the rotation. This gives



**FIG. 8.**

a lever three times as long as when the wire ligature and wedge rubber are used, in which case the length of the lever is only one-half the diameter of the tooth. As rotation takes place the lever and the loop may be readjusted by bending with a pair of pliers."

The application of the plain band with spur as used on the incisors, with the rubber wedge between the arch and the opposite corner from the spur, makes the rotation of these teeth absolutely certain and the force applied reciprocal.



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### **Dr. Young's Appliance.**

If this same principle can be applied to the molars the result will also be satisfactory. This can be accomplished by fitting a No. 2 band to the molar with the screw directed distally. On that part of the band over the mesio-buccal corner solder a short tube parallel to the long axis of the tooth (Fig. 7 A). On the pipe of the D band solder a piece of wire at right angles to fit into this short tube (Fig. 7 B). This gives a hinge attachment between the band on the tooth and the pipe in which the arch rests.

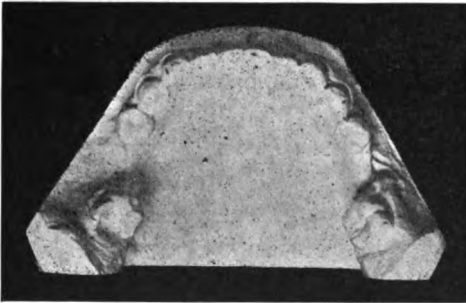


FIG. 9.

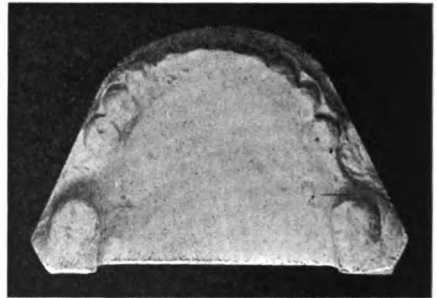


FIG. 10

Solder to the arch a rigid hook so as to pass between the cusps of the cuspid and the first bicuspid, and extend well up toward the palate with the hook pointing mesially (Fig. 8, A and B). From this hook stretch a rubber band over the screw of the clamp band on the molar. At first thought this may seem impracticable, but after looking over the models of several cases, I find that it is very rare that such a hook can not be placed.

In such cases the cuspid on the same side as the molar to be rotated may be banded and have a hook soldered to it, for attachment of the anterior end of the rubber (Fig. 8 C). This necessitates thorough ligation of the banded tooth to the arch in such a way that the cuspid will not be rotated nor displaced in the rotation of the molar.

In Fig. 8 B every unit of force exerted by the rubber band to draw the disto-lingual corner mesially is directed by means of hook and arch to drive the mesio-buccal corner distally, which gives the most reciprocal application of force possible. In Fig. 8 C the force is less reciprocal, owing to the intervening cuspid, but still efficient. There is nothing to interfere with arch adjustment, and no necessity of removing the arch for future bending. If the attachment to the pipe that carries the arch is



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inclined to slip out of this short tube, it can be prevented by placing a wire ligature around them (Fig. 8 C). In Fig. 8 C is also shown a ball and socket arrangement for attaching the pipe to the band, which may be an improvement in some cases. Fig. 8 C, however, shows the usual method of attachment to the D band.

Fig. 9 shows the lower of a man of nineteen with the first molars lost and the second molars badly rotated. Fig. 10 is the same case, which

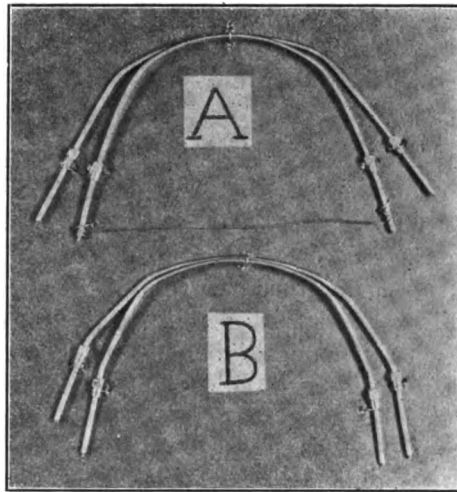


FIG. 11.

has been corrected by the use of this appliance, after first tipping the molars back with the usual application of the arch and the D bands.

I once asked a friend of mine about rotating malposed molars, and he said, "I can rotate them the way I do not want to." This, I think, has been the experience of many of us.

The D bands are usually placed on the first molars with the pipes parallel to the buccal cusps. If some precaution has not been taken, where much expansion is required, the rotation of these molars is sure to follow, and the distal portion of the tooth is always carried further than the mesial (Fig. 5). This is owing to the fact that as the arch returns to its original position carrying these teeth with it, the extreme ends of the arch widen very much more than the parts where the nuts rest (Fig. 11 A). Consequently, if the pipes remain parallel to the buccal cusps, the distal portion must be carried buccally very much more than is required. All



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that is necessary to prevent this is to put a pronounced bend in the arch just in front of the nuts, so that, as the arch returns to its original position, the distal end of the pipe does not move any more rapidly than the mesial end (Fig. 11 B).

When plates are used for retention, the rotation of these molars is not a serious matter, as they will usually return to their normal position, but when a fixed lingual retainer, as shown by Dr. Lourie at our last meeting, is used, it is of great importance that they should not become rotated. This I have learned from sad experience.

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### Discussion of Dr. Young's Paper.

**Dr. Lourie.** To my mind Dr. Young's paper is on a very timely topic, and I believe he has brought to our attention facts and suggestions well worthy of emphasis and further discussion. The appliance speaks for itself, and it appeals to me as being valuable for the reason that the forces applied to the molar are so completely under control. Furthermore, it leaves the expansion arch free to be used directly on the other teeth. In other words, when the expansion arch is used for the purpose of rotating molars in the usual manner, its usefulness in moving other teeth is much impaired. If the molar needs to be rotated, and the expansion arch is used, the movement of other teeth must be delayed until the molar has been partially rotated, at any rate. I believe it is a good appliance and a valuable one, but I do think the description of it and the time required in describing it detracted from other points in the paper more valuable than the appliance.

I must disagree with Dr. Young when he says that molars in torsion occlusion are not very common where teeth have not been extracted. I believe it is common to find them in patients of ten to twelve years of age where there has been no extraction. For some reason the upper molars especially have been rotated in the manner Dr. Young explained. I think it interferes many times with the proper diagnosis: the buccal cusps are in lingual relation, while the lingual cusp may be normal mesio-distally in its relation to the lower molar.

I have noticed cases on the screen during this meeting in which the first molars were rotated considerably. In those cases it probably made no difference at the time, because the second molars had not erupted; but when the second molars come in we begin to have further trouble; so that those things must receive careful attention. I believe we should pay more attention to the rotation of the first permanent molars.



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Dr. Young says if we had the reverse position of the molars in using the expansion arch for rotating (if we were rotating in the opposite direction) it would be a much simpler matter. I would like to ask him why? It seems to me it simply requires a different bending of the arch to use it for that purpose. He says if some precaution has not been taken where much expansion is required, the rotation of these molars is sure to follow, and explains how it may be prevented. I would like to impress on everybody the necessity of preventing these teeth from becoming rotated in the wrong direction. Dr. Young suggests if we put a retainer on that does not hold these molars rigidly, they may return to their original position. That is not always the case. It will prevent many complications if the molars are carefully watched and prevented from rotating during their treatment.

**Lingual Arch  
Retainer.**

One more point I want to explain since he has referred to the lingual retainer and used my name in connection with it. I think the lingual arch has been used improperly. No one should think of putting a fixed, rigid retainer on teeth not in their normal positions, nor where he expects them to adjust themselves as a result of occlusal contact. Consequently the molar should not have a rigid arch put on it in the case he cites. If the molar has been rotated, and you wish to allow it to assume its normal position, make a hinged attachment to the molar band instead of a rigid attachment; or transfer the attachment to a bicuspid band. It is the better plan to prevent the molar from rotating at the beginning.

In conclusion I would like to emphasize two points: The fact that molars are frequently rotated even where no extraction has taken place, and the necessity of being more careful in preventing rotation during treatment. I have been surprised at the number of cases reported in the past year or two where fine results were attained in the anterior part of the mouth and yet the molars were much in torsion, having been left so without any explanation.

**Dr. Hawley.**

I fully agree with Dr. Lourie that many molars are in torsal occlusion where no teeth have been extracted, and I have also noticed many cases where these were left in torsal occlusion. Dr. Young says that men in years gone by, those who have done orthodontia, have left those molars rotated. That is true, but it is now possible to get perfect occlusion. The method shown in this paper is one round in the ladder of advancement.

To anyone of a mechanical turn of mind it seems to me this method of Dr. Young's must appeal. The force is direct and positive; just where we want it. When we get our appliances so perfected that we can apply



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force where we want it exactly, the movement of teeth is quite easy. In regard to the question of the space taken up by the molars, I think Dr. Young is probably right. I have not had an opportunity of testing the matter.

**Dr. Lourie.** One other point I meant to bring out. I have frequently heard it said that there are cases in which the upper teeth are larger than the lower: i. e., the upper arch out of proportion to the lower, and in several of those cases I am quite certain the apparent difference is caused by this very thing Dr. Young has explained. The rotation of the upper molar has taken up just that much more room in the upper arch, and it has been difficult to get the upper cuspids and bicuspid back to the normal position with reference to the lower.

**Dr. Abell.** I have seen that in three different cases. I have not been careful enough in the rotation of molars. I think I can go back home now and get such cases in better shape than I could if I had not attended this meeting. This point has been worth the trip to me, and I have thoroughly enjoyed this paper.

Another point occurs to me. I think in the appliance as shown on the screen you are not getting all the power you might get. If you would remove the German silver threaded bolt and replace with threaded clasp metal, extending it further to the front, say as far as the cuspid, you might do away with the hooks on the arch, as a ligature of wire from the end of this arm to the arch would rotate the molar, as the end of the arm was brought up near the lingual surfaces of the bicuspid and cuspid.

**Dr. Stanley.** I have discussed the rotating device with Dr. Young privately, and I contend that it is not a reciprocal force which he applies. There are two simple forces operating in the appliances shown—one, the elastic force on the lingual side; the other, the nut on the expansion arch as it is turned back on the arch. I do not think the appliance should be termed reciprocal in its action, because it would be misleading.

**Dr. Young.** I am sure you have been very complimentary in your remarks—all of you, and I appreciate it. As to Dr. Lourie's remarks: When I said molars are not often found in rotated positions, I meant we do not find them in seventy-five or ninety-five per cent. of the cases in torsal occlusion, but I have noticed in the last three meetings of this society many molars that were in torsal position and were left that way. I said, Why can not they



be rotated? and I tried and tried to rotate them. I have not had many cases, but have had quite a number of the upper first molars in torsal occlusion. I do say, as I said in my paper, that we almost invariably find those molars rotated after a tooth has been extracted in front of them. I agree with Dr. Lourie's point about these molars being in torsal position interfering with diagnosis. Dr. Lourie also says, Why can not we rotate the molars as easily one way as the other? I think the second part of my paper answers that. Putting the arches in without the little bend made us do what we did not want to do: the kink does the business, I believe.

Another point Dr. Lourie brought out. I did have sense enough when I retained that case with the lingual wire to make some provision for those molars to go back, but they did not go, so I have had to pull them back, and I agree with him that the better way is not to rotate them.

In answer to Dr. Stanley: I have not shown any attachment (Fig. 8 B) at all to the teeth in the arch. Say that this rubber band exerts a force of eight ounces, as Dr. Reoch gave in his paper this morning. It must pull as hard on the hook on the arch as it does where attached to the band on the molar. Now, if the hook is so placed that nothing interferes with it, that force is transferred through the hook and the arch right back, and I contend that every unit of force applied by the rubber band to pull the disto-lingual corner of the tooth mesially, is directed against the other corner to force it distally—which is absolute reciprocal force. On the other side (Fig. 8 C) there is a band on the cuspid, with hook on same. The rubber band is placed over the hook and attached to the molar as in the other case. I do not claim that to be a reciprocal force.

**Dr. Stanley.** I understood that the expansion arch was to be used and rotation of the molars accomplished simultaneously with the other movements of the teeth. If

that is the case you change the reciprocal force which you have just described into two simple forces. I understood that the advantage to be gained by this form of appliance was that it facilitated the rotation of the molars while the other teeth were being moved, and I do not gainsay that point. I merely wish to make the point that if the appliance is used with the expectation that it will act as a reciprocal force, when all the other teeth are tied to the arch, the result will not be what is wanted. The elastics on the lingual side will be the force brought into play, while the attachment of the arch on the buccal side will act as a pivot. To accomplish the rotation of the molar on its long axis it would be necessary

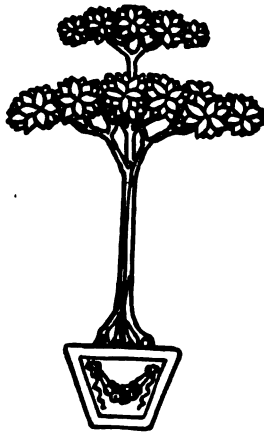


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to screw the nut back on the expansion arch; therefore, unless the appliance is used solely for the rotation of the molars it can not be termed reciprocal.

**Dr. Young.** We have christened the baby "absolute reciprocal force" without showing any attachment to other teeth. I still think you can carry on the other tooth movements while using this appliance, but then it might not be absolute reciprocal force.

I wish to thank you for the discussion you have accorded my paper.







## **A Comparison of Gold Inlay Methods.**

DR. JOHN EGBERT NYMAN, Chicago, Ill.

*Read before the Second District Dental Society, Brooklyn, November, 1906.*

The establishment of any new process has always been followed by a multiplicity of methods to attain practically the same result.

This has occurred so often in the history of our profession that it is to be expected that the future in this respect will be but a repetition of the past. We have witnessed it in everything from amalgams to root canal fillings. The establishment of cohesive gold fillings was followed by the development of half a dozen preparations of gold and twice as many methods of filling cavities with them. The establishment of porcelain inlays was followed by a dozen preparations of porcelain and equally as many processes. So we might go on with example after example if it were necessary.

What has been true of other processes has come to pass in regard to gold inlays. There are now about half a dozen methods in practice, and widely advocated, ranging from the simplest—that of merely flushing a matrix full of solder, to that of the comparatively complicated reinforced sectional or hollow inlay.

Many methods to attain the same desired result. How has this come to be? Through individual ingenuity struggling with the difficulties of individual cases, and, to that which is innate in nearly all of us, the desire to be original.

Many considerations influence the formulation of a method: First, accuracy and permanency of result; second, comfort of patient and operator; third, ease of manipulation; fourth, economy of time.



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It is an axiom that one is not justified in using a complicated method, requiring considerable time, if there be a simpler, quicker method which obtains an equally good result.

If one is guided, first of all, and most of all, by the first two considerations, then any improvements that he can make in economy of time and ease of manipulation are most laudable, but he should be severely criticized for seeking ease and rapidity of construction at the sacrifice of accuracy and permanency and the comfort of the patient. And I am sorry to say that some few methods I have observed have no other claim to general adoption save that they are an easy and rapid means to obtain a result which is simply pseudo-successful and little less than an imposition upon the patient.

But some one may say, of all the many methods some *one* must be the best and should be adopted as the universal and accepted method. This would be an incontrovertable argument if all teeth were similar in shape and position, and if all cavities were identical in character and situation.

Do you use the same preparation of gold and the same manipulation? in other words, the same method—in every gold filling you insert? Of course not—no more should you expect to employ one method in all cases calling for a gold inlay; and yet continually we hear the question asked, "What method do you use for gold inlays?"

There is no "only way" in the insertion of gold inlays any more than there is in other operations we are called upon to perform.

We differ largely as to gold inlay methods because we are not entirely agreed as to the exact field for gold inlays in contradistinction to that of gold fillings; indeed a line of demarcation can hardly be drawn that will satisfy the individual judgment of all operators. Some are so imbued with the efficacy of gold inlays that they concede but a very limited field to gold fillings—others, however, still look askance at "that thin line of cement," and will not employ inlays save where there is such extensive loss of tooth structure that it is impossible to obtain anchorage for a gold filling. Time alone will bring a rational compromise of these extreme views.

I know of no process that has been introduced that is more advantageous to both patient and operator than that of the gold inlay; it has mitigated the hours of toil and suffering for both; it has replaced the uncertain, unsightly extensive amalgam filling with something more sightly and certain; it has reduced the necessity of crowns, with their accompaniment of pulp and tooth destruction, and has provided for a simpler, more conservative, more considerate anchorage for small bridges than has hitherto been available.



Briefly I will describe the various methods of gold inlays and in similar manner the various classes of cavities in which they may be used, subsequently stating the limitations of each method and the specific class of cavity for which they are best suited; incidentally some variations of certain methods will be remarked.

Inlays may be broadly divided into solid and hollow (or sectional) inlays.

**Solid Inlays.** Method A. A gold matrix, invested and filled with 22 K. solder, or a platinum matrix and pure gold melted into it. Of these the gold matrix and solder are preferably advised, as pure gold has such a strong tendency to "ball up" when melted that it is more apt to result in a warped matrix.

Method B. A gold or platinum matrix; loosely fill this with some of the fibrous golds to an approximate contour and occlusion, allowing the patient to bite into it, and then soak this full of solder. This method is advised in preference to A.

Method C. Gold or platinum matrix, additional approximal contour matrix of this gold or platinum, invested—filled with solder from occlusal surface opening.

This approximal contour matrix is obtained by filling the matrix with hard wax, allowing the patient to bite into it; then the wax is chilled; matrix removed, the wax is carved to proper approximal contour, and over this approximal surface is burnished 1-1000th platinum, afterward cut to margin of matrix, then replaced on the contoured wax surface; a hot instrument is run over the margin, which softens the wax to stickiness and fixes the contour matrix in place while it is invested; after this is done and the wax is removed, fibrous gold is loosely packed in and the inlay is filled with solder; of course, it may be filled with solder without first packing in the fibrous gold, but I prefer the first method, as there is less solder in the case, less warpage and a richer color results.

Method D. Gold or platinum matrix, occlusal piece of gold—invested—filled with solder from approximal surface opening.

This cusp piece may be obtained by similar procedure to that described for the approximal contour piece, or it may be swaged in counter-die obtained from model of carved cusp. This method does not commend itself to the writer as much as does Method C, for he regards the approximal contour and contact as of more importance than the occlusion, and owing to the fact that solder—en masse—almost always contains holes, minute or plainly evident, it is better that this porous surface should be on the occlusal than the approximal surface. These pits become veritable fermentation pots; they can do no harm upon the occlusal surface, but



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upon the approximal they are a serious menace to the approximal surface of the adjacent tooth if it be intact, and it is simply saddening to note how often they are to be found at or near the contact point.

**Method E.** Metal model of cavity—undercut at proper points for retention, filled with cohesive gold—condensed by mallet, built to estimated contour and occlusion, then removed from model and cemented in cavity.

This is a method the writer attempted some seven years ago, but abandoned because of the fact that he was so seldom able to obtain an accurate impression or to obtain a model the margins of which would not either batter down or chip.

Recently, however, it came to my knowledge that Dr. M. L. Rhein, of New York City, was constructing inlays by this method and was obtaining splendid results in practical cases. This report led me to try the method again, and in certain cases I did obtain splendid results, as we now have methods and materials for impressions and models that are far superior to what we had years ago.

The limitation of this method is reached when by environmental difficulties we are unable to secure perfect impressions, a condition that is frequently found in actual practice and which permits us to obtain but an approximate model, the matrix from which, however, can be fitted to the cavity in the tooth accurately and speedily by methods well known to everyone.

A hollow inlay may be obtained by this method by drilling a large deep hole in the model, filling this with cement and allowing it to protrude from the cavity wall in a speroidal mass; after this has been set thoroughly the gold may be packed and condensed. When this inlay filling is completed, the amalgam may be removed by boiling in nitric acid, and the cement core dissolved by immersing for a time in ammonia.

One advantage of this method is that one may add to the contour at any point after trying it in the cavity by simply freshening the surface with a coarse sandpaper disk and condensing more gold upon it. This method should never be used for bridge anchorages, as pure gold is too ductile.

**Follow or Sectional Inlays.** **Method A.** Matrix with center cut out—invested, allowing investment to protrude into matrix in small speroidal mass; loosely pack with fibrous gold to approximate contour and occlusion, and flow solder into the mass. After removal from investment a countersunk cavity in the center of the inlay is found. The objection to this method is the one before mentioned, that of the oft occurring pitted-solder approximal surface.



**Method B.** Matrix with center cut out, model of modeling compound carved to accurate approximal contour and occlusion, swaged cusp piece identical to carved model, soldered together—reinforced through opening in matrix with lower grade solder. There are two methods of obtaining this cusp piece, one by taking a plaster impression of the carved modeling compound, obtaining a moldine model from this—placing a rubber ring about it—pouring a fusible metal counter-die—into this the gold cusp piece is swaged with a buck shot; this gives a cusp piece that is identical in size with the carved modeling compound cusp—if the restoration is very extensive, such as involving both approximal sides and the occlusal, or one approximal and a portion of buccal and lingual walls, then the seamless crown method must be used to obtain the cusp piece.

The construction of the cusp piece may be simplified by first filling the occlusal dovetail step with fibrous gold and soaking 22 K. solder into it, making a solid section of it.

The second method is by swaging directly over the carved cusp piece with the matrix upon the metal or cement model. The carved cusp must be made of cement or hard modeling compound cut away at all points and over all surfaces the thickness of the metal to be used.

The criticism of this second method is that one must have first an absolutely perfect impression and model, a thing which, as has already been stated, is frequently exceedingly difficult—yes, practically impossible—to obtain. Moreover, this swaging method does not allow of the swaging of a reinforcing cusp piece which often should be used.

The advantage of this method of gold inlays is that the occlusion and contour may be verified in the mouth just before completion, and if slightly incorrect may be automatically corrected by simply having the patient bite on it.

The results of this method are admitted to be ideal by all who have witnessed it, and in many cases better results are obtained than by any other method.

The only criticism that has been directed against it is that there are so many steps to it and that it takes so much time; this last criticism, in cases in which the method is specially indicated, is simply a preconceived notion which is not borne out by actual experience.

I have, however, scant patience with any such criticism, for however much more time it may consume than some other inlay method, it is a vast improvement in time, suffering and fatigue over any method of gold filling for the same case.

#### **Choice of Methods.**

Having a general classification of methods we come to a consideration of cavities and choice of methods.



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### **Simple Cavities.**

Class 1. Extensive occlusal surface cavities—if the occlusal surface be comparatively flat with low cusps and shallow sulci—then the simplest method of the solid inlays—viz.: Method A, matrix filled with solder, is quite as effective as any other. If, however, the cusps are high, the sulci deep and there is marked overbite, then Method B of Solid Inlays is advised—viz.: a matrix loosely packed with fibrous gold—having the patient bite upon it to obtain approximate occlusion before flowing solder into it. In the preparation of these cavities a definite angle between the floor and side walls should be obtained.

Class 2. Extensive buccal cavities in lower molars with marked overbite. In these, Method A of Hollow Inlays is advised—a matrix with center cut out—invested, allowing the investment to protrude in a spheroidal mass about half way to the ultimate surface of the inlay—fibrous gold loosely packed around and over the protruding investment to an approximate contour and then solder flowed into it. When the investment is removed an undercut cavity is found in the inlay which gives a mechanical attachment between the cement and the inlay in addition to the natural adhesion of gold and cement, and by the reason of a thicker layer of cement, thermal shock is eliminated—a point to be considered, as these cavities are in a section of the tooth that is particularly sensitive.

Class 3. Extensive lingual cavities in upper incisors—in these Class A of Solid Inlays is most effective; sometimes it is necessary to insert two or three very short posts to secure retention, care being observed, of course, not to endanger the pulp in drilling holes for them.

### **Compound Cavities.**

Class 1. Cavities which do not extend to the axial angles in bicuspid and molars of but little contour and slight overbite. In these, Methods A or B (preferably the latter) of Solid Inlays may be used—as merely filling the matrix with solder flush with the overlap surfaces of the matrix results in approximate contour and occlusion.

Class 2. Cavities involving the occlusal surface which extend to or slightly beyond the axial angles in bicuspid and molars which have considerable contour and overbite—the preparation of which involves the cutting of occlusal dovetail and step.

In these, Methods B, C, D and E of Solid Inlays or Method B of Hollow Inlays may be used.

If Method B of Solid Inlays be used—matrix loosely packed with gold fiber afterward filled with solder, an operating matrix must be adjusted while the gold fiber is being packed; sometimes the extension of



the cavity rootwise or other circumstances renders this so difficult as to be very uncertain if not quite impossible, and the Method C or E of Solid Inlays is advised if pronounced approximal contour is called for; if but the usual approximal contour is to be obtained, but there is an abnormal occlusion, then Method D of Solid Inlays may be used; if, however, there is both pronounced approximal contour and abnormal occlusion to be obtained—a combination which often occurs—then Method B of Hollow Inlays is the one best adapted.

Class 3. Cavities in bicuspid involving the entire approximal wall, but not the sulci beyond the transverse ridge.

In these cases the cutting of the transverse ridge not only is a painful ordeal for the patient, but endangers the lingual wall, especially if the case be of a lower bicuspid, and Methods A and B of Hollow Inlays are advised, as they provide ample attachment if the side walls of the cavity be slightly grooved before the inlay is set, thereby obviating the necessity of the occlusal step and the severing of the transverse ridge.

Class 4. Cavities involving entire lingual surface of incisors together with one or two approximal cavities. In these, Method B of Solid Inlays is advised, modified as follows: An additional lingual piece is made and sweated onto the inlay to reinforce it before loosely packing fibrous gold into the approximal cavities.

Class 5. Cavities in bicuspid and molars (usually the latter) which involve an entire approximal wall with a portion of one or both side walls.

In these, Method B of Hollow Inlays is especially advised as in addition to the immense amount of contour to be restored there is usually an abnormal occlusion to be accommodated.

Class 6. Cavities in bicuspid and molars involving both approximal sides and extending across the occlusal surface.

In these, Methods C, D, E of Solid Inlays may be used, but more especially advised is Method B of Hollow Inlays modified by having both matrix and cusp piece reinforced by additional matrix and cusp of 30 gauge 22 K. gold swaged and sweated to original matrix and cusp piece with 22 K. solder.

The cusp piece in these cases must be formed by methods used for swaging seamless crowns.

This method is particularly suggested because there is very little solder in it, while in the other methods there is a great mass of solder, that always warps the matrix to a degree.



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### **Cavities for Bridge- anchorage.**

Sometimes in the insertion of one or two-tooth bridges in the upper incisors the adjacent teeth have Class 4, Compound Cavities, in them, in which case inlays of the modified Method B of Solid Inlays should be used.

In cases which contemplate the insertion of bridges between bicuspids and molars with inlays as abutments the entire approximal wall must be cut away and adequate occlusal dovetail step obtained, and the gingival and occlusal floors beveled toward the center of the tooth; both of these details are absolutely essential. In these is pre-eminently advised a modification of Method B of Hollow Inlays as follows:

After obtaining a matrix of pure gold with center cut out, swage a reinforcing matrix of 29 gauge 22 K. gold, which is to extend only to the margin of the first matrix, but not to overlap on the overlap of the original matrix—the center is also cut from the reinforcing matrix; the two matrices are then sweated together with 22 K. solder; two contour pieces of 29 gauge 22 K. are swaged, sweated together with same grade solder and then the reinforced matrix and reinforced contour cusp piece are soldered with 22 K. solder.

This gives an inlay abutment which will withstand any stress; and has the minimum of solder, which will not be disturbed in any subsequent soldering. Such an inlay may also be used to anchor any of the various attachments for partial plates.

Perhaps some have noticed that I have not coupled the names of practitioners with the descriptions of these methods, and have wondered at it, but the fact is that not any one of the methods is in all details entirely original with any one man. Many men have studied, experimented, written and demonstrated upon gold inlays, among whom there comes to my mind the names of Ames, Alexander, Batchellor, Hinman, Perry, Swasey, Tileston, Thompson, Trude and Wassall. The profession is debtor to the genius of each of these.

You may be convinced of this, that each of the many methods that have been devised and demonstrated are specially adapted to some class of cavity—the exigencies of which have justified the formulation of the method and that perchance the main criticism that may be directed against it and its advocate is that he in his enthusiasm has advised it for all cases.

Centuries ago a wise old philosopher said, "I have come to learn that there is no doctrine that is so absolutely false as to be utterly devoid of truth."

And the central thought of that utterance is true to-day. There are few methods so absolutely faulty as to be utterly devoid of value.



## Neurasthenia and Some of its Oral Manifestations.

By ARTHUR B. CRANE, D.D.S., Washington, D.C.

*Read before the District of Columbia Dental Society, Washington, D. C.*

As the science of dentistry progresses, it becomes more and more evident that the oral cavity must cease to be considered as an isolated field of observation and treatment. The time has arrived when dentists must have an accurate and scientific knowledge of all those metabolic, neurotic and psychic phenomena which are known to and utilized by the medical practitioner in arriving at diagnoses and outlining methods of treatment.

We have learned in comparatively recent years that not only do certain general diseases manifest themselves by morbid changes in the mouth, but indeed that some of them are first recognized by their oral manifestations. To go still further, we have learned that in the mouth lies the source of a few diseases hitherto considered general. It is without apology, therefore, that I direct your attention to a subject which might seemingly be better suited for discussion before a society of neurologists.

Neurasthenia has been called the "American disease," and has made such rapid progress among Americans during the past century that some investigators have predicted that the twentieth century would produce a race of neurasthenics. However that may be, it is certain that neurasthenia is one of the most frequent and important nervous affections in this country to-day.

The importance of neurasthenia was first recognized by Beard, an American neurologist, who in 1879 gave it its present name from two Greek words meaning "nerve" and "weakness." It is not, strictly speaking, a disease, but, as the name implies, a condition, or weakness, of the nerves.

It has been defined by Dercum as "A persistent diminution of nervous energy, together with an increased reaction, mental and physical, to external impressions." In other words, it is a nervous bankruptcy in which the daily expenditure of nervous energy is increased and the daily income diminished. The nerve cells are feeble and uncertain in their action and incapable of properly performing their functions; hence the patient is exhausted by slight causes and reacts morbidly to slight irritations.



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**Etiology.** No anatomical disorganization of the nerve tissue is at present known to exist as the cause of the condition. The active causes include all those influences

which in any way act unfavorably upon the nervous system, such as shocks, injuries, defective vision, severe mental and physical work beyond the individual's power of endurance; worry, especially if associated with lack of rest; impure or extremely dry air, improper nutrition, excessive introspective thoughts or chronic diseases. Among the predisposing causes are neurotic heredity and low vitality.

Neurasthenia may make its appearance as local or general. A local manifestation is almost always the result of overwork or strain of the part. Distinctive terms have been applied by some writers to indicate the predominance of certain local symptoms, as "Gastric Neurasthenia," disturbances of the digestive functions; "Acoustic Neurasthenia," disorders of the sense of hearing; "Cardiac Neurasthenia," palpitation and irregular action of the heart; "Ophthalmic Neurasthenia," changes in the vision; "Dental Neurasthenia," obscure pains in the oral cavity.

Neurasthenia is divided clinically into cerebral, originating in the brain; and spinal, originating in the spinal cord. In most cases we meet with both the cerebral and spinal symptoms, and we will therefore consider the disorder as cerebro-spinal or general neurasthenia.

**Symptoms.** Among the earliest symptoms are derangements of the special senses, as disturbances in the muscular balance of the eye, abnormal and imaginary impressions of taste and smell or deterioration of the sense of hearing. Other common symptoms are tenderness and dryness of the skin and mucous surfaces; weakness of the muscles and muscular twitchings in one muscle or group of muscles; numbness of the limbs, irregular pulse and palpitation of the heart, sleeplessness, a morbid craving for certain foods and drinks, irritability of the sexual organs, chilliness or creepy sensations along the spine, vertigo, fleeting neuralgias and sick headaches, blanching of the hair, flushing of the face, frequent gaping, disturbances of the digestive functions, mental depressions or excitability, loss of emotional control, morbid fears, decrease in mental capacity and loss of memory.

Hypochondria frequently assumes an important role, and not only exaggerates existing symptoms but contributes others of its own.

The general course of neurasthenia is always chronic, and when it seems sudden it has been preceded by a train of overlooked phenomena. In milder cases there is very little external evidence of the derangement. The patient appears healthy and endeavors to hide his troubles, as his indefinite symptoms seldom meet with much sympathy. He is usually self-





conscious and will seek solitude rather than society. None of the symptoms are constant, but are varied by alternate improvement and relapse. As the affection becomes of long standing, the whole nervous system becomes involved, and the patient's vigor is so much impaired that his condition assumes a grave aspect. The tissues may become degenerate, and doubtless these abnormal conditions are either induced or hastened by nervous debility, but they can not be said to be more than mere coincidences. The nerve tissues themselves are not diseased (in a pathological sense), but are weak and liable to become so.

**Neurasthenia  
in Relation to  
Dentistry.**

Patients who visit the dentist in a weakened or nervous condition are liable to develop neurasthenic symptoms in the mouth if too prolonged or heroic treatment is attempted. The emotional and physical strain necessary for the patient to control his actions, the almost constant thought and worry about the teeth, added to, in many cases, by loss of sleep and improper nourishment because of aching teeth, are enough to undermine the nervous reserve of a patient relatively strong. It should always be remembered that neurasthenia is induced by a strain relatively great, that is, greater than the individual's ability to bear.

In dental practice neurasthenia is often the cause of mistaken diagnoses and useless treatment. Among the earlier symptoms in the mouth is a disturbance of the secretions. The gums sometimes become hypersensitive to touch in certain areas without any sign of anatomical degeneracy. More rarely is encountered an extreme sensitiveness to heat and cold or acids. Soreness of the throat and disorders of the muscles of mastication and deglutition, without inflammatory process, are also sometimes encountered.

**Cases from Practice  
Case 1.**

The following cases have come under my observation and indicate some of the vagaries of neurasthenia in dental practice: Married woman, aged 45, whose case I have partially reported in another paper, had right upper first molar treated for many months. Each time the tooth was sealed up a severe neuralgia affected the whole side of the face. Exploration after extraction showed that two roots had penetrated the floor of the antrum, leaving free openings. Douching the antrum failed to reveal the presence of pus, so the wound was allowed to close. Pain ceased and the patient left for a vacation in the country. When she returned to the city about three months later she came to me complaining of pain under the eye, dripping into the throat and other diagnostic signs of antral empyema. The patient insisted upon the extraction of the right upper second bicuspid tooth, which felt elongated,



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and after consultation with her dentist I complied with her request, and found that it also extended into the antrum, which was thoroughly washed as before without disclosing the presence of pus. The wound was kept open for frequent examination for about two weeks, but as no pus was discovered and the pains ceased it was allowed to close. After an interval of about two years the patient returned, having marked symptoms of engorgement of the antrum. A radical operation was advised but declined by the patient until she could consult her physician, who is a prominent rhinologist. He called on me later and recommended deferring the operation, as he believed the symptoms to be entirely neurasthenic and was treating the case accordingly. The improvement of the patient under his care to the present time has justified his diagnosis.

**Case 2.** Married woman, aged 27, having recently experienced a laborious confinement which left her in enervated condition, presented asserting that she had extreme pain in her teeth upon taking hot or cold substances into the mouth. Investigation revealed a beautiful set of teeth in perfect condition. There were no cavities nor any sign of erosion, abrasion or enamel softening. The patient was frankly told the condition of her teeth, and was, I imagine, rather disgusted with my ability as a diagnostician. Afterward I had the opportunity on several occasions of watching her eat and she often had to leave the table because of the excruciating pain in her teeth. About a year later, upon my questioning her concerning the condition of her teeth, she informed me that they were "still sore," evidently having forgotten that the cause of her seeking my services was that her teeth were susceptible to thermal changes.

**Case 3.** Unmarried woman, age about 30, had been in the hands of unscrupulous dentists, who had left her mouth in a deplorable condition as the result of unsightly and unsanitary bridge operations, fillings over improperly treated teeth, etc. It was necessary for me to prepare a number of exquisitely sensitive cavities, divitalize some pulps (which I can not always do without pain) and arrange her appointments very close together. The effect of this strain, coupled with worry over the outcome of the treatments and because of financial difficulties, was that the patient developed a decided case of dental neurasthenia. At almost every sitting she would report discomfort in some different region of the mouth. Healthy teeth and normal gums became the seat of severe pain. Divitalized teeth reacted to cold and vital teeth were sore to percussion. She came to be suspicious



of me and discontented with my methods of treatment, and it was with the greatest difficulty that I diagnosed and treated the simplest affections. Whenever it was possible, I gave her long periods of rest from dental work, after which she returned with restored vitality and the obscure pains entirely quiescent.

**Case 4.** Married woman, age 28, developed neurasthenia after childbirth, followed by subsequent abdominal operation. Her eyes were first affected and later her teeth ached upon the slightest depressing emotion, but the discomfort would entirely pass away with the approach of pleasant experiences. There were only two small cavities in her teeth, neither of which was sensitive, but while filling them the patient experienced pain in other teeth of the opposite denture.

Additional cases have been reported to me by physicians, among which were two of male patients who suffered persistent pain at the base of the tongue. In one the moral effect of an actual cautery of one or two slightly enlarged circumvalate papillæ was sufficient to accomplish a recovery. In the other the pain was coincident with loss of work and financial difficulties and disappeared when the patient received an appointment in the government service. In another interesting case a man was affected with a dryness of the throat. He would sip water almost constantly without obtaining relief, and had difficulty in swallowing solid food. There was no apparent diminution in the salivary secretions, and for moral effect the tongue was slightly cauterized, which seemed to give the patient relief.

**Treatment.** The treatment of neurasthenia should properly be relegated to the neuropathic specialist and not attempted by the dentist. When neurasthenics come under our professional care, however, we may do much to aid the treatment by moral support. Frequent examinations and assurances of lack of objective tissue changes have a quieting and beneficial effect. Neurasthenia requires sympathetic and tactful management. When hypochondriosis is a prominent symptom an elevating mental influence may alone be sufficient to effect a cure. Strychnine and other tonics, outdoor life and change of occupation also produce improvement. Dr. S. Weir Mitchell and other neurologists have devised a system of absolute rest, associated with forced feeding and massage, which is wonderful in its results.

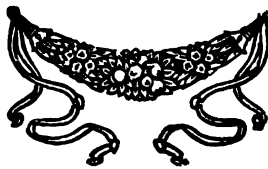
Members of the dental profession are particularly liable to neurasthenia. The dry and often impure air of the operating room, in connection with irregular and hastily eaten meals, and the expenditure of



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nervous energy necessary to conduct an active practice, must all be offset with an adequate amount of outdoor exercise and social diversions in order that this danger may be avoided.

In conclusion let me acknowledge my indebtedness to the writings of Beard, Ranney, Strumpell, Dercum, Jelliffe, Whistler and others, from whom I have freely quoted. In selecting material for this paper I have been guided by a personal knowledge of the condition, gained through living for four years with a widely known neurasthenic.







## **Second District Dental Society.**

**November, 1906, Meeting.**

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A regular monthly meeting of the Second District Dental Society of the State of New York was held at the rooms of Kings County Medical Society, Brooklyn, on Monday evening, November 12. The following were admitted to membership: Drs. Frank A. Gough, Houston Harlan, C. T. Van Woert and David Kenneth Campbell. The president then introduced Dr. John Egbert Nyman, of Chicago, who read a paper entitled "A Comparison of Gold Inlay Methods," which will be found elsewhere in this issue.

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### **Discussion of Dr. Nyman's Paper.**

The essayist is to be commended for his classification of gold inlays, and the cases in which the various methods are to be employed. Certainly it will be of great value to the beginner and an aid to one already expert in this line of work.

While he has said that the exact field of the gold inlay, in contradistinction to that of gold fillings, has not been agreed upon, yet he does not mention the porcelain inlay. He has said that he knows of no process that has been introduced that is more beneficent to both patient and operator than that of the gold inlay. Again, he states that the gold inlay has displaced the uncertain, unsightly, extensive amalgam filling. For one of considerable experience in the use of gold, also of porcelain and



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gold inlays, I wish to take exception to the statement "uncertain amalgam fillings"—although a digression. Dr. Van Woert speaks of amalgam as the dentist's good friend; he might also add "the patient's good friend." I believe that it saves more wrecks of teeth than any material we have. I have in my mouth three amalgam fillings involving the entire morsal surfaces and part of the approximal, placed there thirty years ago—sixth year molars and pulps alive.

A well inserted and carefully lined amalgam filling is *not* an uncertain filling. When finished with the same care that should be given to a gold filling, or inlay, it is not unsightly, as it can be kept clean, which is impossible of any unfinished filling, and, upon this condition, depends the durability of the filling. Of course, I have reference to its use in posterior teeth.

I am not sure that I have a *certain* operation with a gold inlay unless I have it well anchored in an occlusal dovetailed slot; and if the occlusal surface is not involved, crushing force not necessary to be considered, then, from the standpoint of beauty, a porcelain inlay is to be preferred. I am not one of those mentioned by the doctor as looking askance on the thin line of cement, but prefer, except in the anterior teeth, in cavities of ordinary size, the gold filling that has served us so well for a long period of years, reserving for gold inlays those large cavities with frail walls, not only to avoid the drain on the nervous system of operator and patient, but knowing that the inlay will not spread as a large gold filling will, thereby fracturing the wall of the tooth. In such cases the use of a gold inlay, selected according to the conditions stated by the essayist, will give efficient service. This inlay must be imbedded in a good body of cement, and whenever it is possible, the use of the rubber dam, to insure cleanliness and freedom from moisture, enhances the value of the operation.

I believe that it is the consensus of opinion of our expert inlay workers that an inlay of any kind should be imbedded in a sufficient quantity of cement, deepening the cavity to accommodate the same, and not depending on a mere film. The essayist has described many valuable methods of constructing gold inlays. The sectional inlay as devised by Dr. Dills, both sections constructed of pure gold united with and reinforced by a high grade gold solder, having a good space within for anchorage of cement, makes an inlay that is accurate, can be beautifully contoured, and, if the construction is followed with due care in carving, requires only the finishing of the edges and a general polishing the day following the insertion.

Although the method requires an amalgam die and press, the results are such as repay for the extra time. Having an expert inlay worker in



## SOCIETY DISCUSSIONS

my laboratory, this particular style is constructed in twenty to fifty minutes, depending on size. The gold inlay certainly saves many a tooth from being crowned; and its use as an anchorage for small bridges is far superior to the tedious and often times faulty bar anchorage.

I believe that in the anterior teeth the gold inlay should only be employed where great stress is brought to bear. In other cases, for cosmetic effect the porcelain is preferable. The opening of the bite in cases of extensive abrasion of the occlusal surfaces, swedging the matrix, using the same size pins as found in our plate teeth to assist an anchorage, and flushing the surface with gold solder, is a method that we know has given excellent service.

I am in hearty accord with the selection which the essayist has made out of the numerous methods. And I expect to profit by his effort of this evening. The inlays of gold and porcelain have now been in use sufficiently long for us to know that they are materials that we can depend upon, it being only a question of judgment on the part of the operator as to when and where they are to be employed.

From a careful perusal of the paper I am led to believe that it leaves the inference that the essayist is much more of a radicalist in the use of gold inlays than I have reason to think he really is. I am sure that after listening to Dr. Nyman's paper you all must have formed the opinion that Dr. Nyman practically does not insert any gold fillings, and I am sure that is a great mistake. The unfortunate part of all this inlay agitation has been that it leads a large number of the profession to use inlays, whether porcelain or gold, as an easy method to a result, and already I am led to understand by men who are very good observers, and who have traveled very extensively among different offices, the number of men who are entering the profession and abandoning all fillings of any kind is assuming a large proportion.

### **Radicalism in Inlay Work Condemned.**

While this is not strictly in accordance with the title of Dr. Nyman's paper, I do not believe that the subject can be properly covered without considering this phase of the question, because to my mind it is a very serious phase, and I mean by that the effect it is having upon the ability of men to insert gold fillings that will save teeth—not for a year or two or five years, but, barring accidents, for twenty-five or fifty years, if the patient lives that length of time.

There is very little doubt that the inlay propaganda has done a grievous injury to operative dentistry, from this standpoint, and the question for us to consider is whether that extreme point of view should be



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furthered or whether it should be held in check. There is a place for gold inlays, a very great place, in operative dentistry; but I am absolutely opposed to the extreme point of view. In the first place, in careful discussion of this question with every gold inlay operator whose opinion I value, I have yet to find one who is not willing to admit that a perfectly inserted gold filling is superior to the best and most perfect inlays that can be constructed. If this point is admitted, then, as a profession, we should carefully protest and guard against young men getting the impression that they can become good dentists without being able to insert perfect gold fillings.

Dr. Nyman has presented to us a wonderful array of different methods of making inlays, and, in the main, very little can be said in opposition to the views which he has presented. He has done me the honor of speaking of a form of inlay which I have been using for some time past, and I wish right here to decline the honor he has done me in giving me the credit for this inlay, because I thoroughly agree with him that no one man has originated all the steps of any method. I have been surprised that this particular plan has been so long ignored, because, if you decide to use an inlay, it has advantages which the essayist has not dwelt upon which render it, in a large number of cases, infinitely more reliable than any method where the inlay has to pass under the flame of the blow pipe. It has the advantage of being, in my estimation, the simplest method of making an inlay, if you are desirous of obtaining absolutely perfect results. The essayist covered that very completely when he said he admits that with an accurate impression no criticism can be made against an inlay constructed by this method, and I insert this proviso; if the gold is packed solidly enough to give it a specific gravity so that it will come up to at least 19; and there ought to be no difficulty in obtaining this specific gravity outside of the mouth.

I was a little surprised to hear the essayist refer to the use of gold inlays for the lingual surfaces of incisors, and I should feel in the case that he has mentioned that I should certainly prefer a porcelain to a gold inlay. There is always a strong possibility of an inlay, in such a position as that, interfering with the cosmetic appearance of the teeth; and if ever a porcelain inlay was indicated in preference to a gold inlay, I should think it would be in such cases.

The sectional hollow inlay that has been especially evolved by Dr. Nyman is one which, made in the careful and accurate way that he constructs it, undoubtedly is about the most perfect of its kind that has been presented to the profession, and in closing what I have to say I wish especially to emphasize what he has said, that an inlay should be so made that it will be accurate in order to save teeth.



## SOCIETY DISCUSSIONS

**Dr. Weeks,  
Minneapolis.**

I will take this opportunity of expressing a few thoughts that have come to my mind. The most prominent is that caused by the manner in which Dr. Nyman handled the paper, the presentation and, in a measure, the comparison of methods, emphasizing the fact that no matter what the line of work is we have in hand, there is no one method that will fit all cases, there is no one material that is indicated in all cases, and no one method of handling that material, or of application; and this is quite important because men are prone to limit their practice to the choice of but few materials or few methods and to try to fit one suit of clothes on all men who come to the shop.

There is no question but that one of the greatest applications of the gold inlay is, as Dr. Nyman has indicated, for the anchorage of small bridges, and a number of very ingenious methods have been suggested. I think Dr. Nyman did not refer to one which Dr. Murray has exhibited on several occasions—I do not know that he is responsible for it—in incisors and cuspids, a sort of a U-shaped inlay following the deeper depression of the fossæ, a method whereby very strong anchorage may be obtained without jeopardizing the pulp.

**Dr. W. D. Cracy,  
New York.**

I have been interested with the others in listening to Dr. Nyman—he usually does interest us when he comes East. I was rather amazed at his extensive classification and I was interested also in his summing up in the matter, to note that he proved very partial to two forms of inlays, that is, to the simple solder inlay and the sectional hollow inlay, and it does seem to me, if you decide to make an inlay at all in a compound cavity, the most desirable method of all those mentioned is the sectional hollow inlay; its adaptability and the ease with which you get a nice surface finish recommends it in all these compound cavities.

I would like to ask Dr. Rhein a question. In his discussion of the inlay proposition he spoke of the operative inlay—namely, the inlay that is made by condensing gold when the specific gravity was up to 19. I would like to ask if it fitted the cavity perfectly and was properly made, if the specific gravity was 18.5 would it not properly save the tooth? (Laughter and applause.)

**Dr. M. L. Rhein.**

What I meant to convey, Mr. President, was that in making the inlay by the operative means, that should be the object to strive for, to get this specific gravity of 19, for this reason; it is necessary, if the inlay is in a place where it is subject to the strain and stress and wear of mastication, that it should be able to stand that perfectly. If you are inserting an inlay in



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a place where it is not to be subjected to this wear and strain of mastication, 18.5, I suppose, would suffice; but in places where I insert inlays of this kind, where they are subjected to this severe strain, I would feel that if they did not go above 18.3, every one of them, I would have very unserviceable inlays. I believe that an inlay can be made by purely operative measures that will be harder and with a higher specific gravity than that of gold where we get it in its molten state, and it is necessary that you get the highest specific gravity possible. You all know in how many mouths an ordinary gold crown will be practically bitten all out of shape after a certain amount of usage, and that is why I dwell upon having this specific gravity up to 19. I leave it to the judgment of the individual; if there were no strain of this kind that would be an outside consideration. (Applause.)

After that explanation I think Dr. Tracy ought to agree to the proposition and never go below 18.4. (Laughter.)

**Dr. Ottolengui.** If for no other reason than that of expressing my appreciation and gratitude to Dr. Nyman, I am glad that I am here. I think, without doubt, there is no man in the United States to-day who can present so many good things, and so concisely, as our friend Dr. Nyman.

I think to-night, however, he has over-estimated the value of gold inlays; on the other hand, I think that when Dr. Rhein estimates the specific gravity of gold fillings and gold inlays, he has over-estimated both, because an inlay, in my opinion, is nothing more nor less than a cement filling. If you will stop to think for one moment what you are doing when you make an inlay, you will realize that you are simply putting cement into a cavity with a protection or cover which may be of gold, porcelain or whatever you like. If that be the case, it is only a question in my mind as to which is the best cover for that cement, and I am free to confess that I have yet to see very few cases outside of bridge anchorages, even including approximal cavities in molars and bicusps, where I can not put in porcelain that will do just as good service as any gold inlay.

What we want to do is to get right down to a solid practical basis as to the best possible method of saving teeth and serving our patients faithfully, and I want to tell you, you will never do better than with an inlay. I do not care whether it is gold, porcelain, or what else. If any of you gentlemen have anything that is better, come forward and prove to me that it is better. I do not value the gold inlay any more than I do any of the others, but I have awakened to an understanding of something



that is beyond that, and if we, as a scientific body, are not going to advance, what will we do? If we are going to stick to gold foil all our lives, then that is all there is in dentistry.

It has been said that we do not know of all the failures we make, because those patients go to some one else, but I know that my failures with inlays are at least twenty-five per cent. less than those in any other kind of work I ever did. I went to Chicago and saw the work done by Dr. Taggart and others, and I have been doing it ever since, and I believe that the so-called inlays, really protected cement fillings, have come to stay, although there may be much more of the technique for us yet to learn, and we shall come to know of means by which we can produce fillings of this kind which will be away ahead of what we are doing to-day.

Dr. Van Woert refers to a porcelain inlay, saying  
**Dr. Ottolengui.** that no gold inlay could be made where he could not make a porcelain inlay that would do as well, and it is important for us to discuss not only the comparative values of the various gold inlays, but also the comparative value of gold and porcelain inlays, which brings us down to this proposition: When shall we use a gold inlay in preference to a porcelain inlay? Because from a cosmetic standard the porcelain inlay seems to be preferable.

The places where gold inlays are preferable to porcelain inlays are in the posterior portion of the mouth, where there is to be a very large restoration, especially including the morsal surfaces, where occlusion is an important factor, for you can not make as perfect an occlusion with porcelain as with gold, by the methods of gold inlays which have been devised. You can not with porcelain make, primarily, so good an occlusion, and, secondly, having failed in either case, you can perfect your occlusal surfaces better if you are dealing with a gold inlay than you could with a porcelain inlay. Occlusion is a very important matter, and that is one instance in which the gold inlay is preferable to a porcelain inlay.

Moreover, it must be remembered that where  
**Repairing Inlays.** there is masticatory stress, one element of failure in connection with any inlay is the possibility of the chipping of a portion of the tooth structure itself adjacent to the inlay so that it comes back to you with a little crevice; that crevice is more easily managed if the inlay is of gold because you can then insert a small gold filling which shall be partly anchored into the tooth substance and partly anchored into the gold, which can be cut into, whereas, if you had an inlay of porcelain your anchorage must be entirely in the tooth struc-



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ture, or else you must remove the porcelain inlay and make another one.

### **Solder Filled Inlays.**

Now in regard to the selection of the gold inlay method. Dr. Rhein has used an argument which is worthy of discussion. He has pointed out that a gold shell crown is very frequently worn through by the stress of mastication, and yet Dr. Rhein is opposed to solder filled inlays, or inlays which have solder at their surfaces, and prefers a 19.03 gold filling—(notwithstanding that we are in 1906). Those of us who have made gold shell crowns have found that we can obviate the wear of those crowns by putting some solder on the inside of them, and that whereas if the soft gold outer shell is worn through, the masticatory stress does not wear through the solder that is under it. Consequently it occurs to me that a 19.03 inlay is not so resistant as the solder inlay to masticatory stress.

I do not believe, and it has not been proven to me, that you can pack matrices with sponge gold and then sweat solder into them so that they will be as solid as if filled with all solder. I believe you have a porous mass there, much worse than the "stink pots" that have been mentioned. But I do know this, that there is a very valuable method that has been entirely overlooked by the gentleman who read this paper. I can make a good deal more out of the little scraps from my inlay gold than I can by selling it to the dental depot. I have my assistant with a blow pipe make up these tiny pieces of pure gold into very minute and perfect globules or shot; it is not my idea that you should take a handful of these shot and sprinkle them into places you may wish to fill, but they are very, very tiny, and they are pure gold; you can drop some of them at the bottom of your matrix, and they give off no oxide. You can flow solder around them thoroughly, because they are globular; they are already solid, therefore you do not have to melt gold into them, but only around them; as soon as they are covered you can add another little row of your shot and another flow of your solder, and that, I am confident, brings a higher specific gravity than the sponge gold method.

### **Dr. Nyman.**

I fear if I were to dwell on all the points that have been brought up in discussion and answer all the arguments that have been directed against some of the methods I have advocated I would have to write another paper. There are a few things though I do want to touch on, and one is the question of swedging matrices upon amalgam models. I would advise against using the water bag press. At a meeting held in New Jersey last spring, Dr. Ottolengui stated that he had serious difficulty with the method I had shown previously, because his gold matrices were covered



with mercury. I had never had that experience, neither had Dr. Rhein, and we were a little at loss to account for it. But I had never used the water bag press, having used the direct swedging method, that is, the direct blow with the hammer; and when I went home, I tried the water bag method, and, lo and behold! I found the globules of mercury.

**Choice Between  
Inlay and Filling.**

As for indications for gold inlays, there are so many points that enter into that consideration that I hardly dare begin to discuss them. In the first place there is the consideration for the patient—that is to say, frequently very sensitive teeth must be excavated to quite a considerable extent for actual mechanical retention of a gold filling, which is entirely avoided in the insertion of gold inlays. Another consideration is, we get extensive cavities which have walls left which we may permit to remain if we use the inlay method, but which we would not dare to allow to remain if we used the gold filling. Furthermore, we damage seriously many of the teeth we treat by keeping them so dry for from two to four hours; many of the pathological conditions found around gold fillings may frequently proceed from the drying out of the tooth during treatment and keeping it dry so long.

We find ourselves among environments in filling teeth where there is no certainty of the operation. You and I, and all of us, have fillings that we never think of but with feelings of apprehension and a prayer that nothing serious has happened to them since we last saw them; and I would far rather trust to an uncertain gold inlay than to an uncertain gold filling. There will be no more failures with the gold inlay process than with gold filling; the careless operator will be just as careless with gold fillings as with inlays, and I believe he will do more damage to the community with his careless gold fillings than with careless gold inlays.

**Choice Between  
Gold and Porcelain.**

Then we come to the proposition that a porcelain inlay was just as good as a gold inlay. Neither myself nor a lot of men in the West have taken up gold inlays merely because we were attracted by the glitter of gold. Not by any means! Nor because we had no esthetic sense that the sight of a gold filling or inlay could jar upon; but, because we realized that, first and foremost, bicuspid and molars were put in the mouth for service, and not for appearance, and any repairs made to them must be serviceable rather than esthetic. That was because we were meeting with failure after failure in this particular. I found them in my own practice, and I found them in the practice of men who were asserting they had no failures. It was because there were so many failures along the margins of our porcelain inlays that we had,



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perforce, to direct our attention to the gold inlay, which entirely eliminated that. There was a logical reason for that, too; it is very seldom that you come across a tooth the morsal surface of which is comparatively flat, in which the cusps are undefined and not prominent. As a rule you find them with marked occlusal contour and high cusps, and in these cases unless you completely obliterate a cusp—unless you completely cut your margin over on to the descending slope of a cusp, you are bound to have a weak margin on your porcelain inlay that invariably breaks down—that is, if you have any mastication on it at all. I have seen some such porcelain inlays which were splendid successes—because there was no tooth below for them to occlude on—but in nine cases out of ten, in placing inlays in bicuspid and molars where the marginal surface is subjected to mastication, you are between the devil and the deep sea. I have frequently taken cases right out of my chair to the attention of some other practitioner who was so very enthusiastic about porcelain inlays, and asked him if he would put a porcelain inlay in such a case, and have had in reply, "Why certainly"; and I have asked him kindly to indicate where he would make the margins of that filling, and, nine times out of ten, there has been indicated a destruction of tooth structure absolutely unjustifiable and unnecessary; and the esthetic effect when it was finished would have been a great deal worse than mine would have been with a gold inlay and a surface of tooth structure that was permissible in such a case. We have taken up gold inlays because we were forced to. The gold inlay will permit the broader beveling of your enamel margin in bicuspid and molars where there is occlusal pressure upon them, and, furthermore, you can, by methods of finishing down gold inlays before the cement is thoroughly set, spin out your gold, as it were, and roll out your cement margin until you get a fine cement margin and better outline than I have ever seen with porcelain inlays. I have sent patients with gold inlays to other practitioners, saying, "I want you to look at this and know that I have not forgotten how to put in a gold filling." One gentleman looked the method all over and said, "I am glad you have not back slid as far as I thought you had," and criticized the filling in some ways; but, although he was a man of pretty good powers of observation, he did not see that cement line. From its general aspect it looked like a gold filling in every particular, and he took it for granted that it was one. There are very few porcelain inlays in which you could not, with the naked eye, find a cement line; and, as Dr. Taggart says, a few weeks later you find a crevice there that makes you dizzy when you look into it. (Laughter.)

I want to congratulate you gentlemen on the opportunity you are soon to have of meeting Dr. Taggart. He is one of the keenest men in



## SOCIETY DISCUSSIONS

the profession to-day, and one of the most eminently practical men that I know of; he combines brilliancy, ingenuity and practicability more than any other man who ever practiced the profession of dentistry. I bespeak from you a very cordial reception when he comes here, as I understand he will in January. He is a marvelous manipulator of metals or anything else—besides being one of the best fellows that ever lived.

I said there were certain limitations to what we call the gold filling inlays, and one of them is in the very case where Dr. Rhein advocates them both, and that is in extensive restoration. There is just a case where I should say they were contraindicated, because of the fact that even taking gold at its highest specific density it is still too ductile to trust in a place like that. There is danger of splitting off what is left of the tooth wall—there is danger of simply battering that inlay all out of shape. I can obtain very much better results with the hollow inlay that I have described—you get your points absolute, you get your approximal contact, and there is no chance of warping with solder, for there is very little to it. Furthermore, it provides for better means of retention than you get where you have a solid inlay.

I want to correct an impression that has been created by a certain gentleman in regard to this method that Dr. Rhein has recently evolved, and explained here to-night. "It is not true that it takes two men and a derrick to get it out, nor that it takes three men and a trip hammer to put it in. I do not wish to do Dr. Rhein an injustice. (Laughter.)

Dr. Rhein has said that gold shell crowns are an eyesore. I don't think they are half as much an eyesore as they are a gumsore. (Laughter.)

The motive I have had in reading this paper has been born of my experience in observing the work that has come under my notice; it has been due to some experience I have had in trying to follow the methods of men who advocate a certain procedure in all cases. I do not expect you to use these complicated methods in cases where the simpler methods are just as available; but I have read this paper to attempt to convert you from using the simple, easy, quick methods in the inlays and which are exemplified by the models I passed around. These models are all practical cases, and I have passed them around for the express purpose of fixing in your mind about where I stand in the matter of gold inlays, so that you would not have the impression that I am an ultra-enthusiast and extremist. These models illustrate the class of cavities in which I think gold inlays are particularly indicated; and it is for that reason that I have read the paper, so that you may see the comparatively easy method of putting in gold inlays compared with the makeshifts which, as I said



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before, are only pseudo-successful and are nothing more nor less than an imposition upon the patient.

On motion a vote of thanks was extended to Dr. Nyman for his excellent paper.

On motion the meeting was adjourned.

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### **The Central Dental Association of Northern New Jersey.**

**May, 1907, Meeting.**

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A regular meeting of the Central Dental Association of Northern New Jersey was held at Davis's Parlors, Newark, N. J., on Monday, May 20, 1907. The president called the meeting to order. President Marshall then introduced Dr. Stockton, who referred in a few well chosen words to the death of Dr. R. C. Brewster, of Brooklyn, N. Y. Dr. Stockton said he thought it very appropriate that this society should take official notice of the decease of Dr. Brewster; that he felt sure the society was glad of the opportunity of expressing its sympathy at the great loss to the profession caused by Dr. Brewster's death, and paid a high tribute to his memory.

On motion the roll call and the reading of the minutes were dispensed with.

The president then introduced Andrew J. Flanagan, D.D.S., of Springfield, Mass., who spoke as follows:

It has been my custom for some years to take **Dr. A. J. Flanagan.** notes on passing thoughts and events, along certain lines, and later bring forth a paper or address, using those notes as the foundation to build on. When Dr. Meeker suggested that I prepare something relative to the fee question, my note book was perused. I was surprised to find many jottings of a nature to recall to my memory thoughts and events of a seemingly forgotten past. My note book had many question marks after sentences relative to fees. It seems this question of fees is as debatable at the present time as it was twenty or more years ago. In the time at my disposal this evening I intend to give you not a paper or essay, but rather a heart to heart talk.



## Dental Fees.

By ANDREW J. FLANAGAN, D.D.S.

Some four hundred years before Christ the great Hippocrates promulgated what is now known as the Hippocratic oath, as the true guide of the medical practitioner toward his patient. It can safely be said that all so-called codes of ethics from the days of Hippocrates to the present have borrowed more or less from his writings. Briefly stated, this Hippocratic oath is based on the idea that the practitioner himself should always and ever be secondary to the patient. I have no quarrel with Hippocrates and his ethics when considered from the time and environment of Hippocrates and his associates, but when seemingly thoughtful and intelligent practitioners of medicine and dentistry want to apply those ethics in all their entirety, as a guide for the present time and environment in this world, I do wish to take exception.

With all due respect to Hippocrates and his devotees, I wish to promulgate here to-night a new oath—the twentieth century oath—that the dependents and family of the medical or dental practitioner have rights and considerations equal to—aye, greater—than the patient. He who enters any calling or profession to-day and sacrifices knowingly and willingly those dependent upon him, is not living up to the true standard of right and justice that this twentieth century demands. Ethics and morals, in the true sense, are synonymous terms, and are equally applicable to the practitioner of dentistry and his obligations to his family, as to the service he renders his patient. (Applause.)

**Commercialism.** It is said that we live in an age of commercialism. It is my firm belief that we are relatively no more in an age of commercialism, at the present time, in medicine and dentistry, than we were years ago. The study of the past, while proving that this disease we now call “commercialism” existed then, also shows that the present has only new phases of phenomena of the same old, old disease. Society is so conducted in the ways of publicity at present that it is indeed difficult to live the life of the untruthful and unjust and escape detection and condemnation. That so-called eleventh commandment—“Thou shalt not be found out”—is the most irritating in the whole category of commandments to-day, and all because of this thing we call publicity. May not the many detected violations of this commandment at the present time be the reason of the existence of the pessimist and his pessimism?



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There is printed in the city from which I come a dictionary of standard excellence. It is known as Webster's. If you will turn to the word "dentist," you will find the following definition: "One whose business it is to clean, extract or repair natural teeth, and to make and insert artificial ones." I believe this definition of a dentist has been the same in the last three editions of this dictionary, and accordingly has been the means of imparting said definition to many people outside the calling of dentistry. I ask in all candor and sincerity, is the definition correct? If it is incorrect, should it be allowed to go into future editions of this work? May it not have an indirect effect on the question of fees?

The ancient idea of a technical or mechanical training was not of a high order, for we find bondmen and slaves performing most of such work. At the present time in England there is a "snobbery" which says that no man is a gentleman who labors with his hands. England and America have long parted as rivals in the great fight for supremacy in the commercial and industrial world. The Yankee fingers have been too much for John Bull. At the present time the battle royal for commercial supremacy is between America and another nation.

The race in commercial industry and technical pursuits between Germany and the United States is very close, and the reason why Germany is forging ahead to-day is because of its great technical ability.

We had a war some few years ago when the Eastern Yankees—the Japanese—whipped another nation. Did any of you gentlemen ever analyze why that was? Did you ever stop to think that the main point after all was that the Eastern Yankees had a technical ability superior to the other nation? Gentlemen, in America the appreciation of technical and mechanical skill has reached a high standard. It seems to me that if one reads history he must come to the conclusion that America is the brightest star in the whole constellation of nations and the only people under the face of God's sun that honors, as he should be, a man of technical ability—with skill in his fingers to produce in material form something from the ideas and the images of his brain, and to-day America leads the world, not only in mechanical and technical pursuits, but also in that great calling known as dentistry. (Applause.)

The founder of American dentistry as a profession, in 1839, was Horace Hayden, and be it said to the credit of American dentists living in the Connecticut Valley at the present time, that this year will see unveiled in the town of his birth, Windsor, Conn., a monument to his memory. (Applause.)

In these days we hear the words "price,"  
**Fees Defined.** "charge" and "fee" used, often wrongly, and many times sadly mixed, but I want to read what Webster's dictionary says of fees:



"Fee: A payment for professional services; it may be optional in amount or fixed by custom or law."

Have any of you ever thought of the old idea of what a profession is? Have any of you ever realized the difference between the present and the ancient idea of what is a profession? Really, the only difference is this, that in the olden days the question of a direct fee was not considered; there was what was known as an honorarium. When a person came to a doctor for his services he gave him in payment, if he saw fit, an honorarium, and if he did not see fit so to do, he went away without paying anything whatever; but he received the same treatment in either case. In the light of the conditions of the present century, a comparison based on that condition is perhaps not a just one, because conditions have changed. The present idea of a profession and its compensation is that every professional man should receive such support and revenue as shall come up to the requirements of his living, of those dependent upon him, and so rated that he can lay up something for the end of life.

**Influences  
of Location and  
Population.**

As to the fees for dental work: It has been argued for many years that dentistry taken collectively is not receiving the remuneration that it should. Perhaps that is a debatable question, and in its consideration many things must be taken into account. One of the most important things is the question of location. Another is that of population, and last, but by no means least, is the matter of the wages received by that population.

Now, as to the question of location. If a person happens to be located in a small community, where the wage is small, it is an utter impossibility for him to command large fees; as the old saying goes, "You can not get blood out of a turnip," and in considering fees, that should always be taken into consideration.

Then, as to population. The number of inhabitants in the town or city in which one is located is not alone to be considered in applying this test to the question of fees, for many a town of comparatively small population is the center of a very large number of people. For instance, take your city of Newark, where you have a population of about three hundred thousand, and you are the center of fully a million people. In such a situation the question of fees is not a serious one; but if you are located in some small village, with a population of a thousand people, with no industries in the town and the inhabitants dependent on farming, you certainly can not expect to receive fees for dentistry in the same proportion as you would in the large city.



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### **Influences of Personality and Equipment.**

Another very important feature in the practice of dentistry is that of personality. No matter where the dentist practices, whether in the center of vast population or in a small town, his personality must count. Take two men to-day, one graduating at the head of his class from a dental college; let him be known as a valedictorian, and let his personality be such as would not be acceptable to refined people; and in the same class take the sluggard, he who barely squeezes through and receives a diploma, and let the sluggard have a pleasing, refined and cultured personality; let these two men begin perhaps in the same community, and I will wager that within ten years the sluggard's practice will far outclass and outnumber that of the valedictorian.

Your equipment of instruments and appliances should be complete.

On this point I desire to read to you an extract from the remarks made by a man whom I consider one of the bright minds in the profession and which was published in a journal only this month. He says, speaking on this subject:

"One is, that that source of education which is so valuable and necessary to members of our profession, viz., the sense of touch, is losing that development which it is capable of. For you must know that nearly all reliable and accurate information must be obtained either through the sense of sight or through the finger tips. Now the placing before our students and our practitioners of such arrays of electric and automatic machinery not only fails to stimulate toward the acquirement of that education which we may obtain through our finger tips, but it destroys it, and these most interesting and ingenious machines that are furnished the institutions of learning at a reduced price for which the rest of us pay, are not only not an advantage to the student, but they retard his development toward the point where his ability would be of the highest order to serve the great public whom we so glibly profess to be desirous of serving, and make us more dependent upon those highly generous supply houses."

If my good friend will read the history of the change from hands to machinery in general manufacture, he will find much consolation—a consolation which we now call pessimism. If he obtain his results by hand there are also many others who can best obtain them by the aid of what he might call machinery.

### **Education of the Public.**

Let us next consider what we are to teach our patients. It seems to me that the only safe way to teach the public is to show them that the salvation of teeth is the mainstay of dentistry. The question of fees will regulate itself. If you can cultivate in the mind of the person



seeking your services the idea that you are doing that which is best and that which is the accepted practice, the question of fees can be regulated by yourself. I doubt if any intelligent dentist, located anywhere, ever had the unique experience of having a patient pay him more than he asked. When we consider that, speaking generally, the dentist of fifty years of age has seen his best days, we must fix our fees relatively thereto. We must have the public understand that saving of the teeth is the most important part of dentistry, and that it must be paid for. The main reason why so-called prosthetic dentistry has degenerated to the extent that it has, is simply because the public has been taught that it is the material and not the knowledge of how to perform the operation that regulates the cost. To a certain extent that has entered into the specialty of bridge work and into many other specialties of dentistry, and each one of us should so conduct himself and have his surroundings and associations on a plane which will tend to elevate the profession and command suitable fees. If you can only inculcate into the public mind the fact that you have within you that which is best from the professional and from the public standpoint, the question of fees will be of the least importance to you and the patient.

There is no better way of educating the public than through the dental society. There is no better way of arranging the question of fees than by association with your fellowmen, and the time is coming when the strength of a dental society in any State will mean the salvation of the law in relation to dentistry and the making of that which was a trade, a profession, and through our State societies we can regulate the good and welfare of dentistry in any locality.

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### **Little Things, or How to Conduct a Dental Practice to Make Money.**

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By DR. H. EVERTON HOLSEY, Springfield, Mass.

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The code of ethics says, "In most cases the patient is unable to correctly estimate the character of the dentist's operation; his own sense of right must guarantee faithfulness in their performance." Also, "A member of the dental profession is bound to maintain its honor, and labor



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earnestly to extend its sphere of usefulness." I believe it a most laudable ambition to command every power possible to help one to success. Money is a wonderful power for great good. It will help you to extend the sphere of usefulness to the profession and yourself. It is the power of money that we need. It is possible to command this money power without being commercial.

### **Personal Appearance.**

Let us begin the day with this money making dentist. He arises at seven o'clock; one-half hour is devoted to his toilet; a clean shave—no dentist who does not wear a beard has the right to present himself unshaven to a patient; a cold sponge and a good rub. His teeth and hair are given proper attention, he dresses with fresh linen, and a well tailored business suit. Clothes do not make the man, but they play a mighty important part when the world takes a look to size you up. Shabby clothes are no longer an allowable eccentricity of genius. Good clothes are a good investment. The dentist's neckwear is admired or criticized by the ladies more than we know. One two-dollar tie is a better investment than four at fifty cents. He is now well dressed. This one thing is a step to the large fees we find in his practice. He next looks over the morning paper. At eight he has finished a light breakfast. A brisk walk, and he arrives at his office ready and fit for a stiff day's work. At his office he spends ten minutes to clean his teeth, manicure his nails, and douche his nose and throat. He considers his nose and throat require as much attention as his teeth. Stop and think that the patient looks directly into the nose when you are operating. He is sure his breath is not offensive. A deodorant is used before the attendance upon a patient. After getting into a clean operating coat, the morning mail is looked over, and the answers dictated to the lady assistant. At nine he meets his appointment promptly on time. The patient is placed in the chair and made ready for operating by the lady assistant. The dentist steps to the chair and greets the patient with a cheerful good morning and a smile. You can not set a better example to your patients than to meet your appointment on time. Many a dentist has lost good patients by not being on time.

### **Equipment of Waiting Room and Office.**

While our friend the money maker is at his chair, let us take a look at his office. His reception-room shows refinement and taste. It has an atmosphere that is restful and pleasing. A five-foot mirror appeals to the ladies. On the center table are fresh magazines, not one that is a month old or dog eared. For the children such books as "Peter Rabbit" and "Squirrel Nutkin"; children just love



these books, and look forward to the visit as a chance to see them. All the odor of the dental office, so offensive to the ladies, has been eliminated. He uses medicaments that produce results without odor. The operating-room is simply furnished, with all the up-to-date appliances. Two duplicate sets of instruments are used, a change being made with each patient, by the lady assistant. Clean, well polished instruments are noticed and appreciated by the people, and they tell their friends. You say you are too busy; excellent proof that you need a lady assistant. You can hire one from five to twelve dollars per week, spend a few hours each week to train her, and you will soon find it a good investment, inasmuch as it gives you more time to make money. A well trained lady assistant can easily save five dollars worth of time in a day. Have a scrub woman do the heavy cleaning once a week. See that your windows are cleaned every two weeks. The lady assistant will do the dusting each day.

**Duties of  
Lady Assistant.**

What are the duties of the lady assistant? She does the bookkeeping, makes all the records, answers all the letters, answers the telephone, collects the money, giving the receipts, makes the appointments, sterilizes and polishes the instruments, mixes cements, passes gold for fillings, and many other things of much importance to the busy man. To the dentist who would make money a lady assistant is indispensable. Say your time is worth six dollars per hour; this means ten cents per minute. Consider this, and think what the minutes mean. Any of you would pick up a dime on the street and say, "What luck!" Now most every one of you are wasting three to six dollars worth of time every day because your practice is not well systematized. A card system to notify your patients every three, four or six months, that the teeth need a cleaning and examination, will prove a great practice builder, and be appreciated by the patient. Explain the system to your patient, and how, if the mouth is kept up to date all the time, twenty to seventy-five per cent. of the work will be saved. This system will give you prestige and bind your practice very close. I want to emphasize that this is an important point.

**Estimates.**

Teach the people that you expect a monthly settlement, and see that the bill is rendered promptly on the first of the month. An estimate of the work to be done is one of the best roads to large fees. Tell the patient frankly what the work will cost. Make a chart of the work to be done, and a little practice will teach you to rate yourself and the work. Make the estimate large enough to cover any extra work that may be discovered while you are operating. Never exceed your estimate; rather have it less; the patient is better pleased. Some say estimates are not professional.



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Let us see how it is with the medical profession. Here are the facts: you know for the asking that an office call is one dollar or two; a call at the house is two or three dollars. The doctor will tell you that it will cost fifteen to twenty dollars to have your adenoids taken out. This surgeon asks fifty dollars for removing the appendix, or that one commands a fee of two hundred dollars. You can find out before losing your appendix about what it will cost. I believe estimates are professional. Every one of you in the profession asks the other fellow "What will it cost?" when you are having any kind of work done. Why should not the other fellow have the same right to ask you the same question? If the patient is not satisfied to pay your fee, it is tenfold better he should find out before the work is completed. Discussion of fees is always embarrassing after the work is completed. A case estimated is a fee half collected, because the patient knows what to expect. Watch your business and collect your bills.

### **Business Methods.**

A daily report of the condition of your business is of great importance. The following system is simple, and shows at a glance the complete condition of the business every day.

| Date  | Day's Work | Day's Cash<br>Received | Month's Cash<br>Received | Balance Due<br>on Account | Month's<br>Business |
|-------|------------|------------------------|--------------------------|---------------------------|---------------------|
| May 1 | \$50.00    | \$25.00                | \$25.00                  | \$2000                    | \$50.00             |
| May 2 | 100.00     | 75.00                  | 100.00                   | 2025                      | 150.00              |
| May 3 | 50.00      | 10.00                  | 110.00                   | 2065                      | 200.00              |
| May 4 | 75.00      | 150.00                 | 260.00                   | 1990                      | 275.00              |

Look this report over each day. If it shows too much money on the books, take action to better the collection. If the report shows that you are not earning as much as last month, you need to work harder; if the report shows that you are doing more than last month, this pleases you. These facts are of importance, if you would make money. You should collect each month a sum of money equal to the month's business. It is best that the patient transact all money matters with the bookkeeper. You will be surprised if I tell you that you lose two to four hours per week because of patients being late, or not coming at all. Say you lose two hours a week. Fifty-two weeks to the year. Fifty-two multiplied by two equals one hundred and four hours lost. One hundred and four hours at six dollars per hour equals \$624 lost in one year. Think this over and make a charge for the time reserved when appointments are not met. Business men often say, "I can not make an appointment, I



may not be able to come." Say to these men, "I will place you on my waiting list. Should an appointment be cancelled I will 'phone you." In this way he will be able to have his work done without the risk of a broken appointment. The dentist should receive a fee equal to that of the physician for the same operation. The medical profession has the reputation of being one of the most poorly paid. If this is so, where does the dentist stand? Has the average dental fee increased in the past twenty years? The income of the public has increased. Has the dentist shared in this? His living expenses have increased twenty to forty per cent. If you are not up to date, invest some of your money in a post-graduate course; it will pay better than wild cat mining. Buy your supplies at wholesale rates, not retail. Deposit one hundred dollars with your dental depot; you will be credited with one hundred and eleven dollars and eleven cents. You say you have not the one hundred dollars. Go to the bank and borrow it. To-day you will have to pay six per cent. You can make ten per cent. This is four per cent. net profit to you on the borrowed money. A dentist who can not borrow one hundred dollars has a mighty poor credit. A legitimate borrower doubles his capital and chances for making money.

**Investment  
and Speculation.**

Before investing borrowed capital, be positive of the safety of your investment. Real estate is one of the safest investments for a dentist. The art of investment is a science. How you would smile if a Wall Street broker were to say, "I am going to open a dental office, I have read a book on dentistry." This is the same smile the broker has when the dentist attempts to make his investment without a knowledge of the business. When you want to invest in stocks or bonds, go to a reliable banker and take his advice. It is his business to know investments. It is not what you earn, but what you save that counts. A dentist should save twenty to forty per cent. of his net income. Savings and safe investments are a combination that will land you in Easy Street. I think it was Holmes who said, "A man's learning dies with him, even his virtues fade out of remembrance, but the dividends on the stocks he bequeaths his children live and keep his memory green." If you would be a money maker read and analyze what success is made of. The following books are all winners: "Pushing to the Front, or Success Under Difficulties," by O. S. Marden; "Ready Money," by Geo. H. Knox; "Success in Life," by Emil Reich; "The Art of Wall Street Investments," by John Moody; "The Pitfalls of Speculation," by Thomas Gibson.

A few suggestions. The language of the face and manner is the instantaneous shorthand of the mind, which is quickly read. The ability



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to read people at sight is a great professional asset. Culture indicates superiority, and superiority commands large fees. Cultivate a cordial manner and the personality to inspire confidence; it will double your income. Fortune favors the brave, but it takes a mighty lively pair of legs to catch the golden eagles that lay the dividend eggs. The dentist with a good sized bank account can be of greater help to himself and the profession. To make good you must be able to do the extraordinary operation. Money in the dental profession does not come from doing ordinary work. In the eyes of the world the highest shafts of to-day are erected to the men who deliver the goods.

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At the conclusion of Dr. Holsey's paper he read from the "Journal of the American Medical Association" extracts from an article on a paper by Dr. J. E. Dildy, of Lampassas, Texas, as follows:

"Speaking of the position of the medical profession he says: 'We are professional men in every sense of the word; we have the mental labor of lawyers, the moral standing of ministers, the technical knowledge of organized artisans and the business qualifications of school children. The average man will give a lawyer \$300 to \$500, together with a lifetime's praise, to keep him out of the penitentiary for from two to ten years, and at the same time he will raise a phosphorescent glow and a kick that can be heard around the world if a doctor charges him from \$50 to \$100 to keep him out of hell for a lifetime.'"

"The following should be pondered on by every practicing physician: 'The average doctor tries to do too much work. Every doctor wants everybody to patronize him. He likes to be going night and day, rain or shine, Sunday or weekday; hot or cold. This is a business mistake. It wears a doctor to a frazzle. It gives him no time for bill collecting and business matters; no time for patients, who naturally feel neglected and are slow pay as a consequence. A doctor can do better work, more good, and build up a more enviable reputation if he coolly takes his time and is careful and painstaking in his examinations, and if he takes into consideration the pathologic conditions he meets.'"

"Dr. Dildy is entitled to special praise for his honesty and clear-sightedness regarding the value of professional service. He says: 'The prices of our office work and consultations are usually disgracefully small. This "let me see your tongue," off-hand, hurry-scurry kind of professional laziness is not worth the price we get for it. I have lost home, friends and fortune by not examining my patients carefully.' Every physician who is honest with himself will admit the truth of the above statement. Every man knows that when he attempts to diminish the amount of care and attention to details which he gives each one of his



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patients, he thereby diminishes the value of his services. He also knows that in the long run the man who takes pains is the man who receives large fees."

"His closing words of advice are: 'Let us do less work and better work. Let us not raise prices until we have raised our standard of service on a par with our ability. Let us work honestly and not get lazy; keep enthusiastic and join our county societies; take post-graduate work and familiarize ourselves with modern medicine. Let us not dicker in futures nor drink booze, but buy books and drink freely of the fountain of knowledge. Let us work some, and play some, read some and collect some, and make money whenever we can.'"

"It is a most gratifying indication of the increased interest in the practical side of medicine that papers like the above are becoming more and more common in our county societies. Every medical organization ought to have, at least once a year, a plain practical paper on these matters from some clear-headed, progressive member, followed by a general discussion from the members of the society. It will be found in many instances that such a programme will help to clear away old animosities and misunderstandings by bringing about a free discussion and consideration as well as stimulating many physicians to a consideration of various phases of these questions, the importance of which has not heretofore been properly estimated."

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### Discussion of the Addresses of Drs. Flanagan and Holsey.

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If any man will bear in mind the points that have  
**Dr. B. F. Luckey.** been brought out here to-night, given good health and good physique, no matter where his practice may be, provided he is where people live and have teeth, he will be successful. Competition makes no difference. I have often had young men seeking locations come to me for advice, and I have invariably told them to find a locality where there is the greatest number of dentists, for the reason that in localities where there are but few, the people have not been educated to the care of their teeth, while where there are many they have been educated by the precepts and practices of those many, to protect their teeth, and, as you all know, there are always many dissatisfied patients in every practice, and the opportunity of the young man comes if he has the ability and a pleasing personality, and is ready to take care of these dissatisfied people.



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The matter of fees is one which is regulated by the man who makes the fee. Any man practicing dentistry or any other profession who so lacks in self-respect that he allows the patient to fix the fee is one whose final downfall is plain to be seen. Every man should have sufficient character and confidence in himself, if he is an honest man, to know the value of his services, and that value is not governed by the fees charged by neighboring practitioners, except in a reasonable degree. A man's fees, in my opinion, should be governed by the amount of work that he can command at the price which he fixes. He should charge a fee that will keep his practice full from the beginning to the end of the day. A man is justified in charging ten dollars an hour, twenty dollars an hour, fifty dollars an hour, or a hundred dollars an hour, if at such price he finds all his time occupied. Of course, a beginner can not so fix his charges, but when his position is established, he can proceed along the lines I have suggested. A patient called upon a certain dentist for an examination, and the dentist, upon looking into the patient's mouth, remarked, "This is awful!" The patient replied, "What is awful?" and he said, "It is awful for me; there is nothing wrong at all; everything is all right." The patient asked if there was any charge, and the doctor said, "Yes; five dollars." "What, five dollars for just looking at my mouth? How can you do such a thing as that?" said the patient, and the doctor replied, "If I were not to charge you for these services, I would never have the time to look at your mouth, for my office would be so filled with people coming to have their mouths examined, I would not be able to find the time to look at yours, and that is the only way I manage to have any time." He was right. We are all justified in making a charge for an examination, and if the patient requires work and has the work done, that first charge may be credited against the work. Dr. Holsey referred to this subject when he spoke of making charges for broken appointments, but he did not make it as strong as I hoped he would. I do not know what the population of Springfield is.

**Dr. Holsey.** Eighty thousand.

Then, I think for a man to successfully conduct  
**Dr. Luckey.** a practice in a town like that he should charge for examinations and broken appointments.

Now, every man in this room knows that it is personal character and ability that stand for success, and if a man lacks in any one of these qualities he is a failure from the start, and all along the line, with a few spots of sunshine where occasionally undiscerning people fall to his lot; but if he has these characteristics and devotes his time to his profession, he is bound to be, from the very beginning, a successful man and



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one who will finish his life with credit to himself and his profession. It is unfortunate for our profession perhaps that its history is filled with the names of honored men who have had most successful practices, and who have then died paupers. Some such men are still among the living, and we have them with us to-day, spending their last few flickering years supported by the charity of others—men who have not hesitated to charge a thousand, two thousand and even three thousand dollars for services to single patients; men who have been accustomed to collect fees of twenty, twenty-five and thirty dollars an hour for many years. It may not seem possible to some of you young men that such as these should die paupers, or be supported in their old age by the charity of their friends, but it is a fact, and if you young men will ponder on the lessons that have been read to you to-night by these gentlemen from Springfield and put in practice the precepts they have preached, then every one of you, given good health and a fair length of life, will not only shed honor upon your profession, but leave behind to your posterity something more substantial than a good professional name. (Applause.)

I have been very much impressed with these **Dr. M. I. Schamberg.** revelations—the discussion before a dental society of something other than a scientific subject, one which should be discussed, as it has been this evening, in a most informal way in order to get the greatest amount of benefit. I do not believe any fixed rules can be applied to every individual. There are some men whose personal appearance would not be compatible with certain attire; there are certain men whose emoluments are such that they are selected by their patients because they are practitioners of a given type, and you can not establish any fixed and fast rules that will apply in the management of the business affairs of everyone, professionally or otherwise. There is, however, much to be learned from a just appreciation of the value of your services. Personally, I believe that both the dental and medical profession man is underpaid. There are very few men in the profession of dentistry who acquire wealth in proportion to the successful men in other walks of life. Then, again, we must conform to the environments in which we live. If we are conducting what might be termed a first class practice, we do not want to feel that those dependent upon us must attend social functions in less attractive attire than others, or be placed in any position where they may be pointed out as unable to cope with their associates.

There is one point that was brought out by both of the essayists which appears to me to be a very important feature in connection with the charge to the patient, and that is the service rendered. If we disre-



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gard that, we are perhaps in the position of many of the advertising dentists, who are looking for the only means of arriving at what they call a successful practice—that which brings in revenue for practically as little as they can give therefor. But we are dealing with the subject to-night from an absolutely professional standpoint of endeavoring to give to the patient the best possible service within our power. I have in mind the very thorough technique which we often hear described by the Deans of dentistry as to root canal and pyorrhea work and various other specialties; we sometimes hear a general practitioner say in reference to these subjects that he can not afford to do it, that his patients will not pay the fee required for the time necessary. Gentlemen, if you will do the work the patient will pay the fee. There is no question about it. The main thing to keep in mind is that you feel sure of your ground, of yourself. Whenever a patient comes to you with a difficult canal that needs filling to the end, if you will remember that by spending sufficient time to do the work properly you are averting subsequent trouble, you need have no hesitancy in charging your patient the regular fees per hour, even though the cost of that particular filling comes to fifty or sixty dollars. This may sound to you like an extreme measure, but as a specialist I see the result—and I am really speaking against my own interests when I advocate these practices; but I see the results of work that has failed. A large proportion of cases needing root amputation are due to abscesses arising from faulty root canal filling. These patients come to me with their systems undermined by the absorption of pus, and are compelled to pay me anywhere from fifty to two hundred and fifty dollars for a root amputation. Now, where is the economy? For that reason I feel I can bring a message to you from the standpoint of the specialist, that if the service is rendered the patient will pay the fee. Whenever I charge a fee that may appear large to the patient, it does not worry me one bit so long as I feel that I have given the service that is worth the fee; and I feel that each one of you has a right to maintain his fees at a standard that will make it possible to compete with those in the environment in which he lives—provided he renders the service.

I have very much enjoyed the papers to-night, and quite agree with the essayists that it is essential to the successful practitioner that he should attend to what has been termed the business end of his practice. There are some, however, who maintain that there is no difference between the ethics of business and those of a profession, but I do not agree with them; I maintain that the standard of the professional man ethically is far above that of the business man. When we are engaged in professional life we

**Dr. Merritt.**



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accept certain things, such as the conservation of the interests of our patients, and put that first; such as going at any time, day or night, on a journey wherever we may be called without considering our own interests; in the regarding of our colleagues not as competitors but as co-workers, and sharing with them any discoveries in dentistry which may arise. These, I feel to be the obligations we take upon ourselves when we enter professional life. In business there are no such obligations. When I enter into a business calling, I do not, in any sense, because of having taken upon myself that especial calling, assume any special obligations such as I do in professional life. Therefore, we should give emphasis to the fact that we are professional men, and that our first duty is to our patients.

With reference to the fees which we charge, I disagree with the men who feel that they should charge by the hour, because at times our services are of such a character that they can not be compensated for in that way, and it is unjust to ourselves and to our patients to try to do so, but I do believe that if we render real service our patients will be willing to pay.

No man enters the practice of dentistry simply  
**Dr. Chas. A. Meeker.** because he loves it to such an extent as to be willing to practice without making money. I acknowledge, however, that I was brought up wrongly, and for the last five years I have been trying very hard to disabuse my mind of the idea that it is wrong to charge. Many an hour have I worked that I never was paid for, and I am trying at this late day to undo that work. Dr. Flanagan and Dr. Holsey have done a great work for us in presenting the subject to-night as they have, for I do not believe that dentists in this country receive adequate compensation.

It will be unprofessional, of course, to class us in the same category as the members of labor unions and men who charge so much for every item they furnish, as the plumber or other artisan does, but if we were to charge so much for alcohol, so much for gold, so much for the use of instruments, so much for some other part of our expenses, we might perhaps receive more adequate pay for our work.

I agree with Dr. Flanagan when he says that the dental society has cast upon it the duty of educating the public in this respect.

I desire to congratulate the Central Dental Association for two events that have come to my notice.  
**Dr. Flanagan.** I refer to the honorary banquets tendered by it to Dr. Hull and to Dr. Stockton. If there is one thing that tends to elevate our calling it is the recognition of intrinsic worth in members of our





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profession. Both Dr. Holsey and myself have, of course, assumed that each member of this society is a technical man, and that the services he renders are pre-eminently for the benefit of the patient, but we also desire to bring forth the fact that we believe that the business side of dentistry or medicine is important, at least to the extent of providing remuneration to a practitioner for the support of himself and his family in the environments in which they are placed. As Dr. Luckey has well said, many a man eminent in the profession in his day through lack of attention to the business side of his profession has ended his days in the poorhouse, and it seemed to us it is high time that business principles should be inculcated in the minds of dentists.

I must confess to being a little bit disappointed  
**Dr. Holsey.** in the discussion, for I rather thought that some of these bright and able men of New Jersey and New York would tell us of some of the ways in which they have achieved success. What we need is to get together and have just such heart to heart talks, and I hoped the papers would bring out a discussion from which we could each learn what the other fellow does.

I am a great believer in the theory that it is the duty of the dentist, through his practice, to educate the people to appreciate the work that we are constantly doing. There are many dentists who do not speak a good word for the other man's work when they might easily do so. Of course, there are times when you can not, and then it is better to keep silent. The public is very apt to judge of your profession by what you say of it yourself.

In speaking of the professional side of our calling I agree that perhaps there might be a leaning toward commercialism, but hitherto the leaning has been very much to the other side, and we have made a great mistake in not paying sufficient attention to the business features. When a man is reputed in the community to have a good sized bank account he seems to command the respect of many of the people; he may not be as good professionally, nor give as good services to his patients as some others, but assuming a man does give his patients good services, he has a good deal better chance of success if he is reputed to have a solid bank account than the man of equal ability who has not that reputation, for the world goes to the successful people. The man on top who has more to do than he knows how to look after, is the one that is sought after, and we should educate the public to the feeling that there are more of these top-notchers in the profession. Let the man who is on top boost the other fellow along.



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This same subject is being taken up and considered by the medical profession, and the time is very near at hand when the business side of all professions will receive more attention than it has. We need moneyed men in the profession, we need their wealth to help the profession along, and with their aid the profession can be elevated from the rut it now occupies, for, as I said in my paper, money is a great power for good.

On motion a vote of thanks was then tendered to the essayists of the evening.







### **National Dental Association Meeting.**

The National Dental Association meeting, held at Minneapolis during the last days of July, did not attract the large attendance which should be the reasonable expectation in connection with the representative association of American dentists. Nevertheless a great deal of business was transacted, the resolutions reported by the Council being the most important coming from that body in years.

The President's address was a scholarly presentation of the present conditions, and discussed the urgent need for a larger and better organization. He made a special plea for closer relations of local societies with State societies, and of the latter with the National. A communication having the same object in view was received from the Illinois State Dental Society, and is of sufficient importance to command wide attention and study. It reads as follows:

**Communication from  
Illinois State Society.**

The Illinois State Dental Society, at its forty-third annual meeting at Quincy, unanimously passed the following resolution:

*Whereas*, the Illinois State Dental Society, at its annual meeting in 1903, expressed the urgent need felt by its members for a better organization of the profession of





the State by the appointment of a committee to devise plans for increasing the membership of the Society, and at its annual meeting in 1904 adopted certain amendments to its By-Laws and appointed a committee to reorganize the Society on a plan similar to that carried out effectively by the medical societies of many States under the direction of the American Medical Association, and

*Whereas*, as a result of this reorganization work the paid membership of this Society was increased from 274 in 1904 to 1,300 in 1905, and further increased to 1,400 in 1906, and there is every prospect that this large membership will be kept up, and

*Whereas*, there has been a decided advancement of the profession of Illinois as manifested in society work, good fellowship, the passage of better legislation, the prosecution of illegal practitioners, etc., and

*Whereas*, the Secretary of the Illinois State Dental Society has during the past year received and answered letters of inquiry regarding this reorganization work from officers or members of dental societies in the following States, several of which have already adopted similar plans: Vermont, Pennsylvania, North Carolina, Florida, Ohio, Michigan, Indiana, Kentucky, Mississippi, Wisconsin, Iowa, Missouri, Kansas, Nebraska, Oklahoma, Texas, Minnesota, Colorado, Washington and California. Therefore, be it

*Resolved*, that the President of the Illinois State Dental Society shall appoint a committee to call the attention of the officers and members of the National Dental Association to this work, with the request that that body take action intended to bring about as rapidly as possible the reorganization of other States on a uniform plan, to the end that there may be established a similar relation between the National Dental Association and the various State organizations to that existing between the American Medical Association and the various State medical societies.

Presented by G. W. Dittmar, G. N. Johnson, J. K. Conroy, Committee.

**National Association  
Journal.**

The project aiming toward the establishment of a journal of the association was again discussed, and a step in that direction taken. It was resolved that a part of all annual dues received during the coming year should be set aside as a nucleus for a Journal Fund. The question of a journal, and of the enlargement of the National Association, are so closely interwoven that they may best be discussed together. Just what the scope of the journal is to be seems not as yet to have been decided. If it is to be exclusively devoted to the transactions of the National Association, starting perhaps as a quarterly, which would be a conservative procedure with a limited capital, it is manifest that it would not attract a large circulation outside of the asso-



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ciation's membership, and, therefore, the success of the venture would largely be proportional with the enlargement of the list of members.

Even if a journal of wider scope and more frequent appearance be contemplated, it is manifest that the foundation of its subscription list and support must rest mainly upon the membership of the National Dental Association, at present about seven hundred.

The pet argument of the advocates of a National Association journal is that the American Medical Association has its own organ. All these apparently overlook the obvious corollary that if we are to imitate the Medical Association by publishing a journal, we must likewise copy their organization, which is so framed as to comprise the largest possible membership, a definite part of the fees for which are compulsorily applied to the support of the magazine.

Thus the communication of the Illinois society, which in effect proposes that the National Dental Association should aim at a reorganization in imitation of the American Medical Association, is most timely. In spite of the fact, however, that many State societies are considering the plan of the Illinois society, several years must necessarily pass before the State societies throughout the country can all be reorganized, and meanwhile the prospect for a National Association dental journal will languish unless some means be immediately adopted which will at once increase membership without militating, later on, against the complete reorganization along the lines of the Medical Association. At present membership must come through delegates from State societies, allowed in a limited proportion. Might it not be a feasible plan to create an Associate membership, with annual dues of three dollars, to which all members of State societies would be eligible, two dollars of the dues being applied to the magazine fund, the Associate member obtaining the journal and all rights of membership except voting and holding office?

### **San Francisco Relief Fund.**

The committee to whom was entrusted the various sums collected for the benefit of dentists who had suffered from the California earthquake forwarded a report announcing a balance in hand amounting to about three thousand dollars. They suggested that this sum be paid into the treasury of the National Dental Association, to be





held in trust for the benefit of future sufferers, or for unfortunates such as may be deemed worthy of assistance. This seemed an eminently wise proposition, and was adopted, and thus a nucleus has been formed for a special fund for the assistance of the needy, a fund which probably in time will grow through gifts and legacies.

**Educational Scheme  
Condemned.**

An alleged educational project which has recently been promulgated, carrying the name of a proprietary mouth wash company, was condemned in a special resolution reported by the Council, because it had been widely rumored that the concern would have the support of the National Dental Association. The Council very wisely in this manner afforded the Association an opportunity to discountenance the coupling of a trade name with a work, which, if needed at all, should be conducted in such manner that the interests neither of a trade house nor of individual dentists would be advanced under the thin disguise of aiding the public.

Ever and anon we hear a cry "Educate the public." A close scrutiny of every such proposition has invariably disclosed a selfish interest in the background. Usually the advocates of lectures on "Oral Hygiene" or on "Care of the Teeth," generously offer themselves to do the lecturing, but never in localities far from their own offices. The latest scheme, being backed by and named after a mouth wash, would necessarily serve as an advertisement of this proprietary preparation, notwithstanding the fact that the projectors strenuously deny this. The matter can be easily tested. It has been declared that the mouth wash house has contributed \$50,000 toward this purely humanitarian scheme, not for advertising purposes, but as a slight acknowledgment of the debt which that house owes to dentistry. Now that the National Dental Association has refused to be associated with the movement in its present guise, if it be really true that no advertising is required, why not donate that \$50,000 to the National Dental Association, on condition that the Association should undertake the work in its own way?

**Committee on  
Reciprocity.**

A communication was received from the National Associations of Faculties and Examiners proposing that a committee of nine should be appointed, three from each of the associations named, and



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also from the National Dental Association, said committee to report next year as to the possibility of creating a National Board, whose examination certificates would enable the holder to obtain license to practice in any other State without further examination. The idea seems to be to study the system of license exchange in the Dominion of Canada and to determine whether or not it would be applicable under the laws of the States. The object is good, but its consummation very doubtful.

### **Odontographic Society Communication.**

The Odontographic Society of Chicago suggested the appointment of a standing committee to investigate cements, amalgams and other proprietary preparations, with the idea of making such reports thereon as would enable the practicing dentists to know which are reliable. This was referred to an appropriate committee.

### **Death of Prof. W. D. Miller.**

The most startling incident of the meeting was the wholly unexpected announcement of the death of Prof. W. D. Miller. Only recently Prof. Miller returned to America to accept the deanship of the Dental Department of the University of Michigan. He was likewise to have been the principal essayist at the Jamestown Convention. Dr. Burtown Thorpe, reporting for the Committee on Organization of the Jamestown Convention, astounded the assemblage by stating that Prof. Miller had endured an operation for appendicitis and had died a few days later. Appropriate resolutions were passed as soon as those present could recover from the first shock of the announcement.

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## **The Jamestown Convention.**

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The Jamestown Convention promises to be a grand success, in spite of the tremendous loss which it has endured through the death of Prof. Miller. Considering the fact that there are to be but four essayists, the Organization Committee might well have been staggered by the loss of its chief essayist, Prof. Miller, at a date so close to the meeting. But the news came during the special meeting of the Committee at Minneapolis,





and steps were promptly taken to strengthen the programme. The Committee still hope to have Prof. Miller's paper for presentation, and will be honored by being able to include in its transactions the last work of this great contributor to dental scientific knowledge. In addition, however, arrangement was made with Dr. W. H. Taggart to give a special clinical lecture at which he will show his perfected casting apparatus, and will demonstrate and explain his technique not only of casting gold and other metallic inlays, but also the ease with which clasps, dentures and bridges may be cast in solid pieces, thus obviating the use of solder. The other essayists are as announced in the programme, printed elsewhere in this issue.







### **Prof. W. D. Miller.**

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During the meeting of the National Dental Association at Minneapolis, the death of Prof. W. D. Miller was publicly reported. The announcement came as a profound shock, as practically none present knew of his illness. Prof. Miller was operated on for appendicitis at the hospital in Newark, Ohio, on July 22, and conditions found were such that the physicians knew his life was in danger. Two days later, there seemed to be an improvement, and hope for the best was encouraged, but the heart's action slowly weakened, and he died on Saturday, July 27. Prof. Miller had been ill only a few days, and the gravity of the situation was not realized. It is probable that Prof. Miller's objection to an operation delayed surgical interference till it was too late to save his life.

Professor Miller was born August 1, 1853, near Alexandria, Ohio. He attended the University of Ann Arbor from 1870 to 1875, and graduated from there with the degree B.A., "with eminent rank." During the winter of 1875-1876 he visited the University of Edinburgh and attended lectures on mathematics, physics and chemistry, and received honorable mention for work in the laboratory and the prize offered by Professor Tait for the best essay on a specified subject. In 1876-1877 he attended lectures of Helmholtz, Kirchhoff, Wangerin, etc., at University of Berlin, but owing to illness was obliged to return to America, and matriculated at the University of Pennsylvania, from which he received the degree of D.D.S. in 1879, and a prize for the best essay on "Conservative Treatment of the Dental Pulp."

He again returned to Germany, and in 1884 was made professor of operative dentistry at the Department of Dentistry of the University of Berlin.

In 1885 the University of Michigan conferred the degree of Ph.D. upon him. In 1887 he was promoted as M.D. at the University of Berlin, with the predicate "*magna cum laude*," and in 1894 was made extraordinary professor in the medical faculty of this university. For ten years he was state examiner for operative dentistry in Berlin.





In 1901 the Trustees of the University of Pennsylvania unanimously voted to confer the honorary degree of Bachelor of Science upon Prof. Miller in recognition of his services as an investigator. He was the first graduate of the Dental Department of that university to be so honored. At the 1906 meeting of the New York State Dental Society he was made a Fellow of the New York State Dental Society, and awarded the society's gold medal "for distinguished contributions." In 1907 he received one of the special diplomas of honorary membership conferred by the *Société Odontologique de France*, being the only choice from Germany. Prof. Miller was an honorary member in twenty-one different societies in nine different countries.

At the time of his death he had just returned to America to assume the position of dean at the Ann Arbor school, and had also been counted on for the principal essay at the Jamestown Convention.

Prof. Miller's fame as an investigator will be imperishable, and his contributions to the knowledge of the etiology of caries, erosion and other causes of tooth destruction will long remain classic.

He leaves a widow, one son and two daughters, one of whom is the wife of Dr. Walter G. Cady, Middletown, Conn.

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### **Thomas Palmer, D.D.S.**

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Dr. Thomas Palmer, one of the oldest dentists in Massachusetts, died at his residence in Fitchburg, on June 18, at 11 P. M.

Dr. Palmer was born on June 26, 1820, at what was then known as "Notown," but now a part of Leominster. He was a descendant of the third generation of John Palmer, who came from England early in the eighteenth century. He commenced the study of dentistry with a number of the Shirley Shakers, with whom he remained several months. He later studied with Dr. Samuel Ewers and Dr. Ambrose Lawrence, of Lowell, Mass. After practicing several years, he took a course at the Baltimore College of Dental Surgery, from which he graduated in 1847. He was a friend of Wm. T. G. Morton, who discovered the use of ether as an anesthetic and from him learned to administer it. Dr. Morton furnished Dr. Palmer with an inhaler which he used to administer ether, and which he carried with him when he went to Baltimore to take his course. He gave a successful demonstration, administering to a negro slave, who had a tooth extracted, using his inhaler, at the Baltimore College of Dental Surgery in the presence of Professors Chapin A. Harris,



## ITEMS OF INTEREST

Thomas R. Bond and Amos Wescott. Upon his return to Fitchburg in March, 1847, he administered ether for a physician to perform a surgical operation, probably the first etherization for surgical work in Fitchburg outside his office.

Dr. Palmer was married in 1846, and is survived by his wife, one son, Dr. J. N. Palmer, of Fitchburg; two daughters, Mary C., wife of Dr. C. W. Partridge, of Lawrence, Mass., and Emma R., wife of A. N. Lowe, of Fitchburg.

His intellectual, mechanical and physical characteristics were marked, accounting for the high standing which he held both in his profession and the community. His office for fifty years was the rendezvous for dental work of Fitchburg's most aristocratic and wealthiest citizens, and the prestige of this office is being fully maintained under the management of his son, Dr. J. N. Palmer, and grandson, Dr. Erwin F. Lowe.

A. E. G.

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### Dr. Isaac Strickland.

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Dr. Isaac Strickland died in Bangor, Maine, March 19, 1907. He was born in Turner, Maine, January 31, 1831, and was educated in the public schools of Livermore, Kents Hill and Bangor High School. He went from Bangor into a dentist's office in Boston, May, 1848, and remained there until the summer of 1853, when he came to Bangor and commenced the practice of dentistry. He had a very successful practice until 1901, when he retired. He was in the Army three months as quartermaster of the Sixth Maine Regiment in the War of the Rebellion. In October, 1861, he was taken very ill with chills and fever, and resigned. He served four years in the city government, then in the Board of Aldermen, and was chairman of the committee that built the grammar school building at Union Square in Bangor. He was a director in the Bangor & Piscataquis Railroad for three years. He was a member of the Loyal Legion and of the Maine Dental Society. He was married to Frances A. Wing, daughter of Hon. A. A. Wing, in 1859. They had one daughter, Mrs. J. E. Tucker, now living in Summit, N. J.





# SOCIETY ANNOUNCEMENTS

## National Society Meetings.

Jamestown Dental Convention, Norfolk, Va.,  
Sept. 10, 11, 12.

American Society of Orthodontists, Detroit,  
Mich., Oct. 2, 3, 4.

## State Society Meetings.

Northern Indiana Dental Society, Peru, Ind., September 17, 18.

Fourth District Dental Society, Schenectady, N. Y., Oct. 15, 16.

Northeastern Dental Association, Portland, Me., Oct. 16, 17, 18.

Virginia State Dental Association, Jamestown, Sept. 10, 11, 12.

## Program for the Jamestown Dental Convention, Norfolk, Va., September 10, 11, 12.

### OFFICERS.

Hon. President, Dr. J. Y. Crawford, Nashville, Tenn.; President,  
Dr. V. E. Turner, Raleigh, N. C.; First Vice-President, Dr. B. Holly  
Smith, Baltimore, Md.; Secretary General, Dr. George F. Keesee, Rich-  
mond, Va.; Treasurer, Dr. Mark F. Finley, Washington, D. C.

### PROGRAM.

Tuesday, September 10, 1907, 9.30 A. M.—Meeting called to order  
by Dr. Burton Lee Thorpe, St. Louis, Mo., Chairman Committee on  
Organization. Invocation, Rev. Dr. C. L. Bane, pastor Memorial M. E.



## ITEMS OF INTEREST

Church, Norfolk, Va. Address of welcome, Hon. Harry St. George Tucker, President Jamestown Exposition Co. Address of welcome, Hon. Claud A. Swanson, Governor of Virginia. Address of welcome, Dr. Edward Eggleston, President of the Virginia State Dental Association. Address of welcome, Dr. Joseph W. Eggleston, Richmond, Va. Address of welcome, Dr. W. G. Mason, Tampa, Fla., President Southern Branch N. D. A. Address of welcome, Dr. J. Y. Crawford, Nashville, Tenn., in behalf of the profession of the South. Response to the addresses of welcome, Dr. J. D. Patterson, Kansas City, Mo. Address by the President, Dr. V. E. Turner, Raleigh, N. C.

Tuesday afternoon session, 2.30 P. M.—Clinics in Convention Hall. Dr. Clarence J. Grieves, Chairman, Baltimore, Md.

Tuesday evening, September 10, 8.00 P. M.—Smoker at Inside Inn. Dr. B. Holly Smith, Chairman, Baltimore, Md.

Wednesday morning, September 11, 9.30 A. M.—Illustrated lecture, Dr. F. T. Van Woert, Brooklyn, N. Y., "Is the Cemented Filling the Filling of the Future?" Discussion opened by Dr. Wm. K. Slater, Knoxville, Tenn., Dr. Craig M. Work, Ottumwa, Iowa.

11 A. M.—Illustrated lecture, Dr. Chas. L. Alexander, Charlotte, N. C., "Gold Inlays." Discussion opened by Dr. H. Herbert Johnson, Macon, Ga., and Dr. J. G. Fife, Dallas, Texas.

2.30 P. M.—Clinics in Convention Hall.

8.00 P. M.—Illustrated lecture, Dr. R. Ottolengui, New York City, "The Purposes and Accomplishments of Modern Orthodontia." Discussion opened by Dr. W. O. Talbot, New Orleans, La., and Dr. H. W. Morgan, Nashville, Tenn.

Thursday, 9.30 A. M.—Clinics in Convention Hall.

2.30 P. M.—Special clinical lecture and demonstration by Dr. Wm. H. Taggart, Chicago, "Cast Gold Inlays, Bridges and Plates." Discussion opened by Dr. J. H. Lorenz, Atlanta, Ga., and Dr. L. E. Custer, Dayton, Ohio.

8.00 P. M.—Entertainment given to members and guests of convention by Virginia State Dental Association under the chairmanship of the Society's President, Dr. Edward Eggleston, Richmond, Va.

A cordial invitation is extended to all ethical dentists to become members and attend this meeting.

*All sessions are to be held in "The Convention Hall," at Exposition Grounds. Entrance to this hall is outside of the grounds, thus saving admission fee to enter it; however, entrance to the grounds is possible without leaving the hall.*

To expedite the work before the general sessions all resolutions,



## SOCIETY ANNOUNCEMENTS

notices and routine business must first be submitted to the Committee on Organization, who at the proper time will present it to the general body.

### COMMITTEE ON ORGANIZATION.

Burton Lee Thorpe, Chairman, 305 North Grand Avenue, St. Louis, Mo.; Thos. P. Hinman, Vice-Chairman, Inman Building, Atlanta, Ga.; F. W. Stiff, Treasurer, 600 East Grace Street, Richmond, Va.; R. H. Walker, Norfolk, Va.; J. E. Chace, Ocala, Fla.; Clarence J. Grieves, Park and Madison Avenues, Baltimore, Md.

H. WOOD CAMPBELL, Secretary.

Suffolk, Va.

### SURGICAL CLINIC.

The following gentlemen will give surgical clinics: Dr. Trueman Brophy, Chicago, Ill.; Dr. M. I. Schamberg, New York, N. Y.; Dr. W. J. Roe, Philadelphia, Pa.; Dr. V. P. Blair, St. Louis, Mo.; Dr. W. A. Bryan, Nashville, Tenn.; Dr. B. G. Copeland, Birmingham, Ala.; Dr. Wm. T. Nicolson, Atlanta, Ga.; Dr. Fred W. Moorehead, Chicago, Ill.; Dr. Randolph Winslow, Baltimore, Md.

Dr. Schamberg will also give an exhibition of the X Ray for making diagnosis and a clinic with the X Ray showing its diagnostic value in oral surgery.

These operations will be performed in the Operating Rooms of the Norfolk Protestant Hospital, where patients will be cared for following the operation.

It is expected that patients will be furnished all operators, as a committee has been appointed in Norfolk and surrounding towns for this purpose.

L. M. COWARDIN, Chairman Surgical Clinic,  
407 East Main Street, Richmond, Va.

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### **Fourth District Dental Society.**

There will be a joint meeting of the Third, Fourth and Fifth District Dental Societies of the State of New York, held at Red Men's Hall, Schenectady, N. Y., October 15 and 16, 1907.

A. S. MOORE, Secretary.

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### **Northern Indiana Dental Society.**

The nineteenth annual meeting of the Northern Indiana Dental Society will be held at Peru, September 17 and 18. The Northern Indiana is noted for good meetings, and this promises to be even stronger than heretofore.

W. R. MEEKER, Secretary.





## **Indiana State Dental Association.**

The Indiana State Dental Association has begun active work in preparing for a Semi-Centennial Jubilee meeting to be held in Indianapolis, June 4, 5, 6, 1908, celebrating the fiftieth anniversary of the State Association.

## **Mississippi Dental Association.**

The fourteenth annual meeting of the Mississippi Dental Association, held in Meridian, Miss., May 28, 29 and 30, proved to be the best in the history of the Association. A great many young men were received as members and the membership is double what it was three years ago.

The social feature was a banquet tendered the Association by the Meridian Dental Society, and was presided over by Dr. C. J. Washington, of Memphis, Tenn., as toastmaster, and many well chosen toasts were responded to by the members present.

The following officers were elected:

President, Dr. L. A. Smith, Port Gibson.

First Vice-President, Dr. J. F. Brunson.

Second Vice-President, Dr. C. F. Boger, Natchez.

Secretary, Dr. E. Douglas Hood, Tupelo.

Corresponding Secretary, Dr. L. B. Price, Corinth.

Treasurer, Dr. C. C. Crowder, Kosciusko.

The Association will meet in Jackson next year.

E. DOUGLAS HOOD, Secretary.

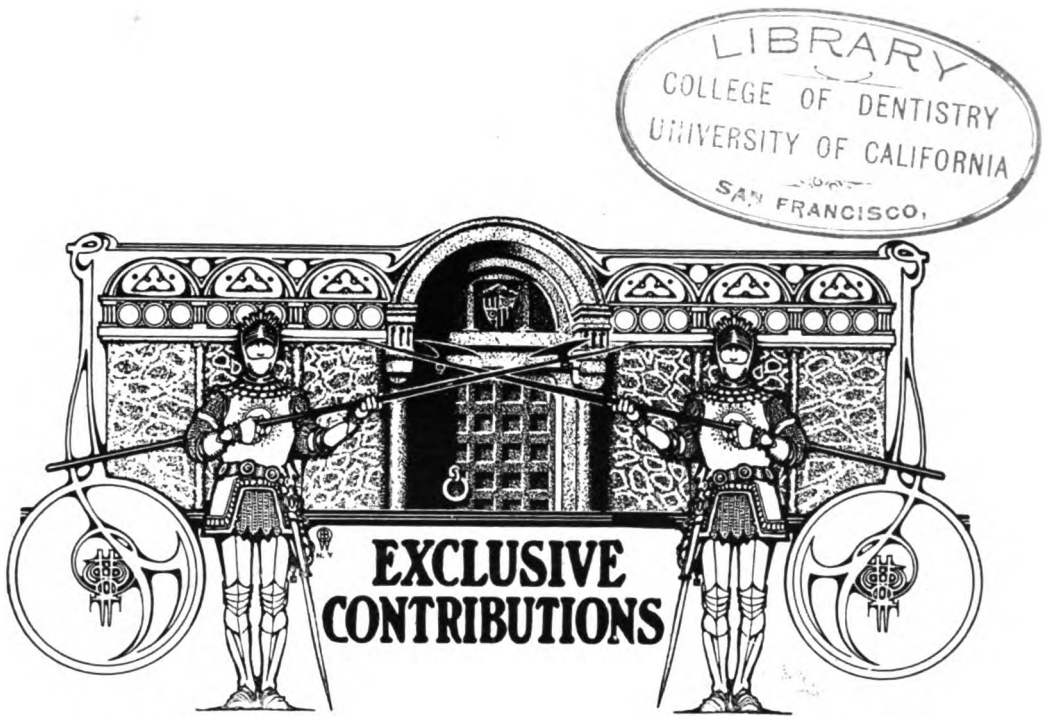
## **Maine Dental Society.**

At the forty-second annual meeting of the Maine Dental Society, held at Rockland, July 16, 17, 18, 1907, the following officers were elected: W. S. Miller, Fairfield, President; W. R. Bibber, Eastport, Vice-President; H. A. Kelley, Portland, Secretary; E. J. Roberts, Augusta, Treasurer; D. W. Fellows, Portland, Librarian.

### **EXECUTIVE COMMITTEE.**

F. H. Mead, Bangor, Chairman; E. P. Blanchard, Portland; J. P. Lancaster, Madison; E. L. Hall, Augusta; I. E. Pendleton, Lewiston.





## **The Principles and Practice of Filling Teeth with Porcelain.\***

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By Dr. JOHN Q. BYRAM, Indianapolis, Ind.

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A method of preparing approximo-incisal cavities by cutting a series of reverse curves, as illustrated in Fig. 32, may be used for the preparation of some cavities to prevent frail enamel walls. The advocates of this method claim that this irregular outline results in a less conspicuous line of demarcation between the porcelain and the enamel, and that the series of reverse curves gives the essential acute angle resistance for the porcelain of the inlay. It has been found advisable to drill a hole rootward (Fig. 32 A), which should be about No. 18 gauge. This hole should run parallel with the axis of the tooth and should be from three to five millimeters deep. It should be drilled after the matrix has been properly formed. Then a piece of threaded platinum wire, No. 19 gauge, should be inserted into the hole and permitted to extend about two millimeters beyond the matrix. When the inlay is constructed, the post is attached in the porcelain and offers additional retentive resistance after the inlay has been set (Fig. 32 B).

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# ITEMS OF INTEREST

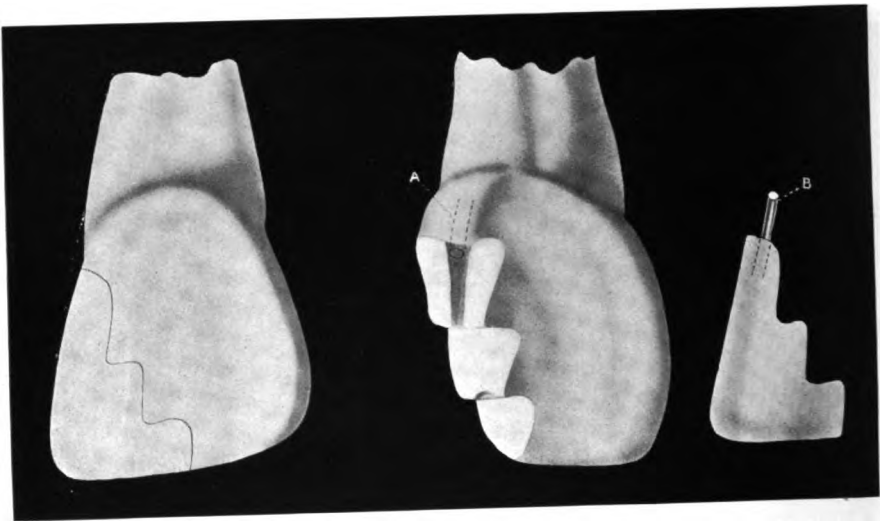


FIG. 32.

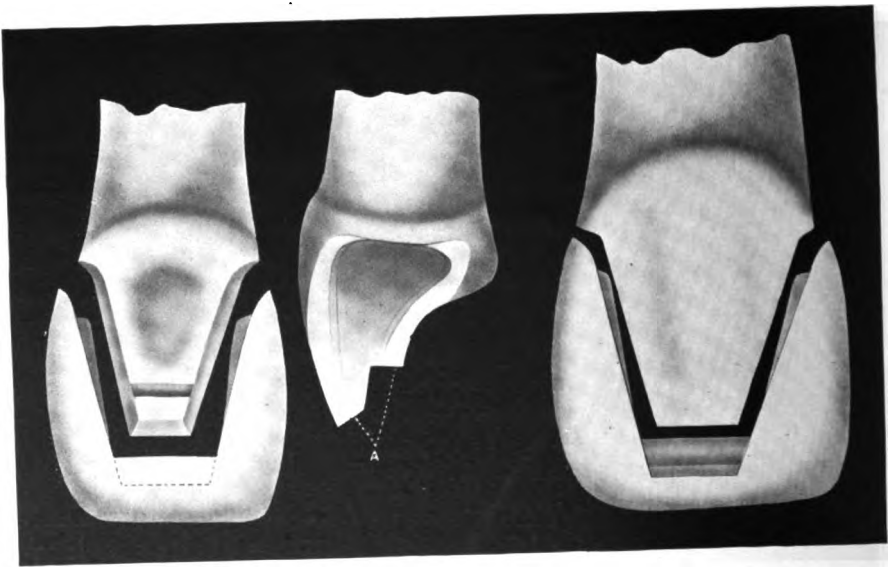


FIG. 33.



### **Mesio-Disto-Incisal Cavities.**

The question may arise with some as to the advisability of inserting these large compound inlays instead of crowning the teeth. It must always remain a matter of personal equation just when to substitute crowns for fillings, but the author believes that a tooth with a vital pulp, presenting sufficient structure to retain a filling for a reasonable period,



FIG. 34.



FIG. 35.

should be filled. Many times these fillings will last for years and when the filling is lost the tooth presents the same opportunities for crowning that it did before it was filled.

The labial and lingual walls of both cavities should converge toward the incisal edge and their margins should form right angles with the curves of their surfaces (Figs. 33 and 34). Both labial and lingual plates should be involved in the incisal third and the lingual plate should extend farther gingivally than the labial (Fig. 34 and Fig. 35). The gingival walls of both cavities should extend to the gum margin and should run at right angles with their pulpal walls. If the pulp will permit, shallow triangular cavities should be cut between the labial and lingual walls in the gingival third, gradually diminishing in depth through the middle third.



## ITEMS OF INTEREST

The labial and lingual walls of the cavities should slightly diverge from the pulpal wall. This form of cavity preparation is particularly indicated in the preparation of mesio-distal cavities in lower incisors. The step should be changed so that the labial plate of the incisal edge is involved instead of the lingual, thereby making the resistance from the lingual surface.



FIG. 36.



FIG. 37.

### Fractures of Incisors.

One of the most perplexing forms of cavities is found in those cases where only a small portion of the approximo-incisal angle has been lost by fracture (Fig. 36). Such fractures can be successfully treated by forming the cavity on the lingual surface without further involving the labial plate. Fig. 36 shows the labial outline, while Fig. 37 shows the cavity formed in the lingual surface. Enough of the lingual surface should be included to form a step of sufficient area to retain the inlay securely. The labial wall of the step should be flat, while the gingival wall should form a concave surface. The axial wall of the step should run almost parallel with the long axis of the tooth, and it should form an acute angle with the labial wall.

In case of more extensive diagonal fractures of the incisal edge and where the pulp remains vital (Fig. 38), it has been found advisable to



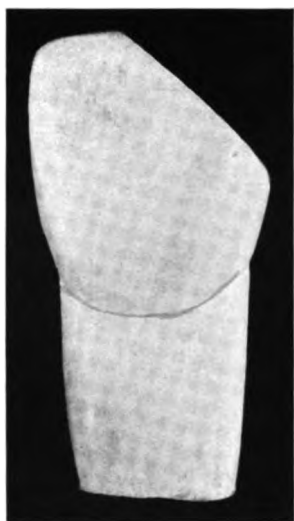


FIG. 38.

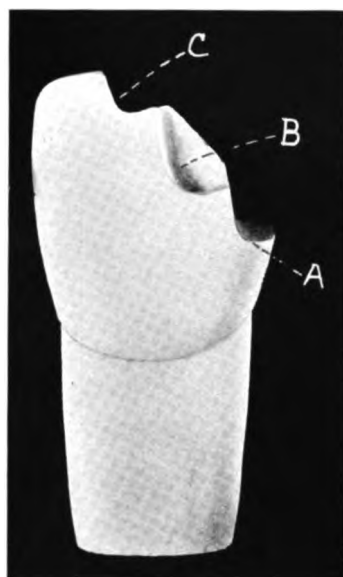


FIG. 39.



FIG. 40.

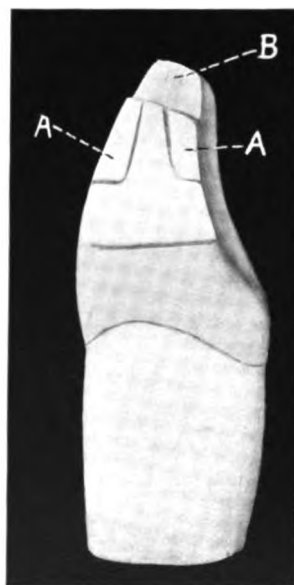


FIG. 41.



## ITEMS OF INTEREST

protect the pulp by the remaining dentin and to retain the inlay by preparing the cavity with a series of reverse curves (Figs. 39, 40 and 41). Fig. 39 shows the cavity formation for the labial surface and Fig. 40 shows the formation of the lingual. The gingival wall should form a con-



FIG. 43.

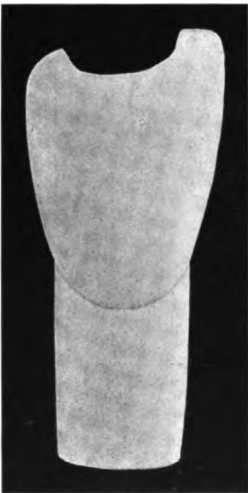


FIG. 42.

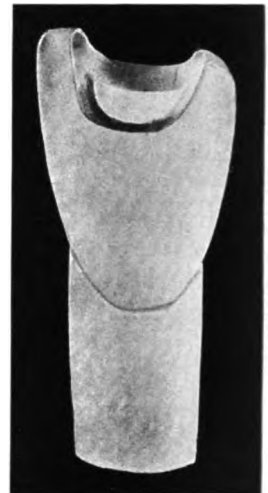


FIG. 44.

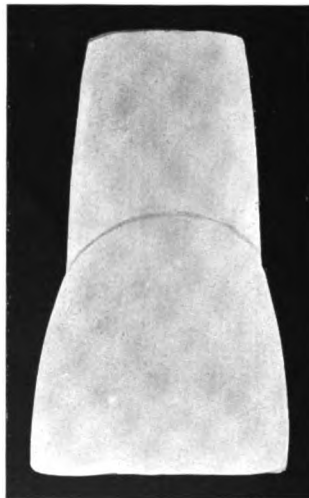


FIG. 45.

cave surface, mesio-distally (Fig. 39A.) Reverse curves should be cut in the labial and lingual plates about midway between the gingival wall and the incisal edge (Figs. 39B, 40B and 41A). A third reverse curve, involving both labial and lingual plates, should be formed at the incisal edge (Fig. 39C). A shallow groove should be cut between the enamel plates in the incisal region to break the plane surface, formed by the enamel plates, in this region (Fig. 41B).



In case the pulp is involved, the inlay may be retained by a post inserted into the canal. The margins should be smoothed, after which the pulp-chamber should be so prepared that the matrix may be withdrawn. After the matrix has been constructed, a 16 gauge irridio-platinum post should be inserted through the matrix into the pulp canal. The post should extend far enough through the matrix to give sufficient retention to the porcelain and that end around which the porcelain is fused should be roughened to give it secure attachment.

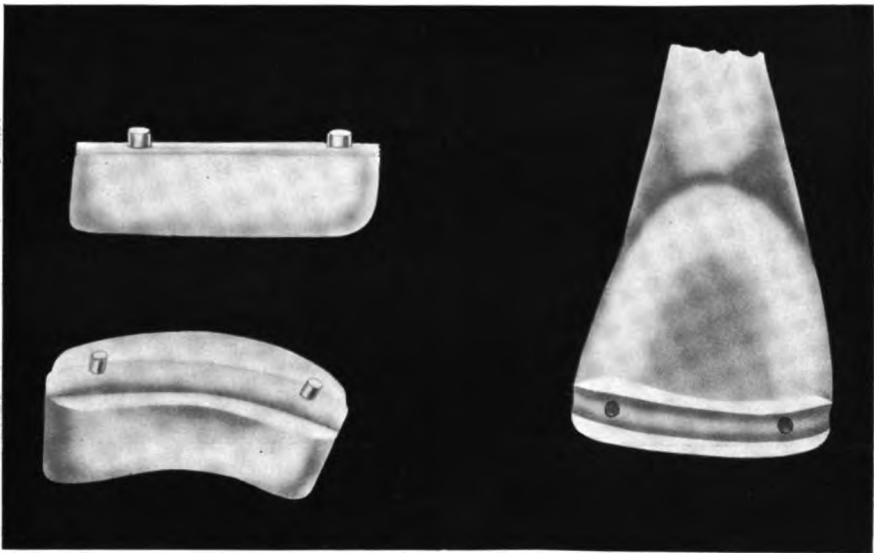


FIG. 46.

### **Cavities Involving the Incisal Edge.**

Simple cavities in the incisal edges of the anterior teeth are usually caused by malformation. The mesial and distal walls of the cavities should extend gingivally from two to four millimeters, and should slightly diverge toward the incisal edge (Fig. 42). They may be slightly grooved between their plates of enamel to resist the lingual stress (Fig. 43). The seat should be flat and should be grooved between the labial and lingual walls.

Another form of cavity preparation for this class of cavities is as follows: Prepare the labial outline as in Fig. 42. The lingual wall should be cut farther in every direction, forming a step (Fig. 44). Two shallow



## ITEMS OF INTEREST

grooves may be made between the plates of enamel, extending from the seat of the cavity toward the incisal edge in such a manner that they slightly diverge.

Cavities involving the entire incisal edge are very rare (Fig. 45). The inlay must be retained by pins and by a step. Figs. 46 and 47 show a form

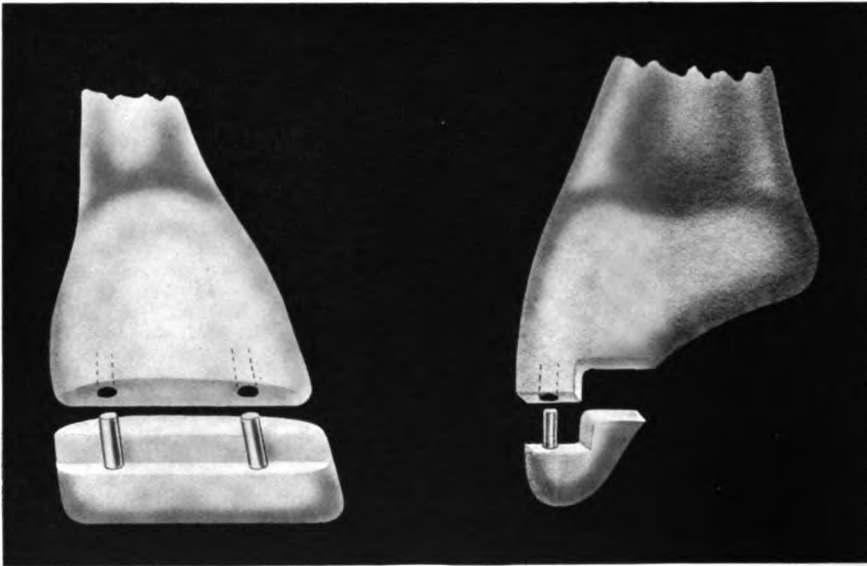


FIG. 48.

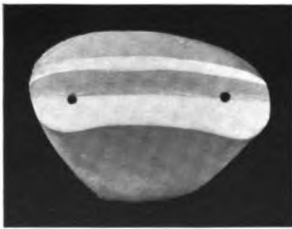


FIG. 47.



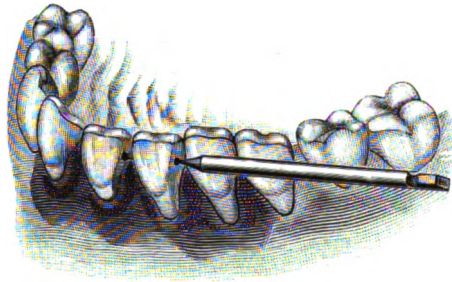
FIG. 49.

of preparation for retaining the inlay by pins. The tooth should be ground until sound structure well supported by dentin is reached, then a V-shaped groove should be cut in a mesio-distal direction across the tooth. The edges of this groove should be so formed that the cavity bevels toward the center, the bevel being at about right angles to the curve



of the surface. After the matrix has been constructed, two holes extending parallel and in a rootward direction, should be drilled with a round bur, No. 18 gauge. Platinum pins, No. 19 gauge, should be inserted in these holes with a matrix in position, and porcelain mixed to a thick consistency should be packed around the heads of the pins and fused to a high biscuit. The matrix should be again adjusted and re-burnished.

Figs. 48 and 49 show a form of cavity preparation where a step is cut on the lingual surface. The lingual margins should extend at least two millimeters farther gingivally than the labial and should be cut about one-half the thickness of the incisal end, provided the pulp will permit. Pins may be used with this method of cavity preparation to give additional retentive resistance.



### **A Splint for Lower Incisors.**

F. E. ROACH, D.D.S., Chicago.

The splint described herewith is intended especially for very loose lower incisors. Its employment in these desperately loose teeth has proven so very satisfactory to the writer that it is unconditionally recommended where it can be used.

Very frequently patients will present with one or more lower incisors almost ready to drop out, and yet by a little treatment and fixation they may be made useful for some time.

The means of supporting these teeth have been numerous and many of them valuable, but so far as the writer is aware, the method herein described is new, and for that reason a detailed description is given.



## ITEMS OF INTEREST

The illustration shows a case where the left lower incisor was very loose, the outer incisors were quite firm, and to secure fixation of this one tooth, it was pulled forward (labially) sufficiently to permit drilling a hole through it mesio-distally—drilling from the distal side—the tooth being held firmly between the thumb and forefinger of the left hand while drilling.

Upon pushing the drill through, start the hole in the adjoining tooth, after which the drill may be withdrawn and the loose tooth held back lingually while the hole is drilled deeper into the other tooth. In this case the hole was not drilled through, but in case the right central had been loose the hole would have been carried into and nearly through the right central.

A piece of platinum wire No. 20 gauge slightly threaded was passed through left central into the right central and cemented to place. The teeth should be properly placed with reference to articulation and alignment before cement hardens.

Usually these teeth can be drilled through without encroaching upon the pulp or causing any considerable pain. In cases where devitalization has been necessary, this form of fixation is frequently given preference.

The advantages of this splint are simplicity of application, avoidance of display of metal, minimum mutilation of teeth and elimination of lingual obstruction.

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### **Spinal Anesthesia from the Standpoint of the Patient.**

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By JOHN S. MARSHALL, M.D.,

Examining and Supervising Dental Surgeon, U. S. Army.

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In relating my personal experience, as a patient, with spinal anesthesia, I do so with the hope of adding something to the knowledge of the physiological effects of cocaine when used in this manner for producing insensibility to pain in surgical operations.

Spinal anesthesia has at the present time but few advocates in the profession, and will I think, for obvious reasons, never become popular with the public; nevertheless, it is a safe and valuable mode of producing anesthesia in certain cases, and should, therefore, be accorded the recognition which its successful use in hundreds of cases entitles it to receive at the hands of the profession.



After witnessing several operations made upon various portions of the body by Dr. Morton, of San Francisco, in which this method of anesthesia was used with apparent success, I became interested from the standpoint of the oral surgeon, and determined to try it myself upon the first suitable case presenting that required operation upon the maxillary bones. After several months a patient presented who had a fracture of the mandible that required extensive wiring, and with the consent of the patient this method was tried. It, however, proved a signal failure, as the patient declared there was no insensibility to pain nor the slightest anesthesia in the upper extremities, neck or head.

Maj. J. M. Kennedy, surgeon U. S. A., who assisted me at this operation, had similar experiences in other cases in which he had used this method of anesthesia. He, however, was generally successful in producing complete anesthesia in those portions of the body that are supplied by the sacral plexus, and the only unpleasant symptom encountered was a persistent headache, continuing sometimes for two or three weeks after the injection.

My interest in this method of producing anesthesia was so great that I determined, should it become necessary for me to submit to a surgical operation, to insist upon the use of spinal anesthesia, that I might have the opportunity of studying its effects from the personal and practical standpoints, and thus settle in my own mind at least its merits and disadvantages.

On January 11, 1907, it became necessary for me to enter the U. S. Army General Hospital, Presidio, San Francisco, for an operation for double inguinal hernia.

This disability was of long standing having been incurred in a railroad accident in 1864, while en route to the front with my regiment. I am at this date sixty years of age: heart, lungs and kidneys in a normal condition, and in all other respects in perfect health and condition. The operations were performed by Major Kennedy, assisted by Captain Shaw and Lieutenant O'Conner, assistant surgeons U. S. A.

**Technique  
of Spinal  
Anesthesia.**

The patient after being prepared for the operation is seated upon the operating table and told to lean forward and arch the back as much as possible. This separates the vertebræ, dorsally, to the fullest extent. The lumbar region is then thoroughly scrubbed with soap and hot water, washed with bichloride solution 1 to 1000, followed with alcohol. A hypodermic syringe, glass barrel, with piston down, which has been previously sterilized and charged with one grain of sterilized tropa-cocain (the usual dose), is now handed to the



## ITEMS OF INTEREST

surgeon and the needle inserted between the third and fourth lumbar vertebræ and carried forward until it enters the spinal canal; the piston is then gradually withdrawn until the barrel is filled with the spinal fluid, which is allowed to remain until the cocain is dissolved. This takes but a few seconds, and the piston is then as gradually carried to its former position, returning the fluid charged with the cocain to the spinal canal. The needle is then withdrawn, the puncture washed with alcohol and sealed with collodion.

### **Physiological Effects of the Injection.**

The introduction of the needle is no more painful than for an ordinary hypodermic injection. Upon withdrawing the spinal fluid from the canal a slightly painful sensation, like that from heavy pressure, was experienced. This was doubtless due to the establishment of a partial vacuum within the canal, as the pain immediately passed off upon the return of the spinal fluid to the canal. As soon as the needle puncture was dressed I was laid upon the operating table and the area of the operations again cleansed.

In about one minute after the cocain was injected a sensation of numbness was experienced in the toes; at the end of two minutes this sensation had extended to the knees; and in three minutes it had reached the umbilicus. Accompanying the numbness in the legs was a sensation of *great* weight. It seemed as though they weighed tons, and that by the greatest effort it would be impossible to move them, yet upon making the attempt to move the toes and to flex the legs at the knee it was found that motion was not impaired.

The operation upon the right side was now begun, and the tissues proved to be completely anesthetic. While the operation was in progress I was studying the further effects of the cocain upon other portions of the body.

In five minutes after the injection, numbness was experienced in the fingers and hands. Sensation was entirely suspended in the third and fourth fingers of both hands, but anesthesia was not complete in the thumb nor in the first and second fingers. No sensation of weight was experienced in either of the hands or arms, and although a slight numbness was experienced from the shoulders downward to the hands, there was very little diminution of sensation in the shoulders, or in the region of the brachial plexus. The neck and head were in nowise affected by the drug, sensation remaining complete and unimpaired in these portions of the body. In about twenty minutes after the introduction of the cocain sensation was completely restored in the fingers, hands and arms.

The operation upon the right side was unusually prolonged on account



of the complicated nature of the hernia, viz., direct and oblique combined, and numerous adhesions of the hernial sac with the walls of the inguinal canal. The time consumed in this operation was just thirty minutes. No sensation of pain was experienced during this operation until the introduction of the first superficial suture. It was very evident from the increased pain caused by the introduction of the other three sutures that the anesthetic effect of the drug was rapidly passing off and that in all probability the operation upon the left side would be somewhat painful. I was, however, willing to endure this rather than to take a second injection, or to postpone the second operation to a further date, as I was anxious to have the whole surgical procedure completed at that time, and, furthermore, I desired to carry out my study of the effects of the drug to the end. I therefore requested the surgeon to go on with the second operation, assuring him that I could endure it, and that I would not flinch under the knife.

I nearly repented of this, however, in the next few minutes, for the first touch of the knife was quite painful, and gradually increased in severity as the operation progressed.

The most painful part of this operation was the tying of and amputating the hernial sac. At this time I experienced a nauseating and sinking sensation in the region of the solar plexus and for a few moments I feared that I was about to lose consciousness. A few inhalations of spirits of ammonia, however, gave me the necessary stimulation to prevent a loss of consciousness, and I was not again troubled with faintness.

At this time I noticed that the sense of great weight in the legs had entirely disappeared and that numbness was now only distinguishable in the toes. The suturing of the deeper tissues was exceedingly painful, and it seemed to me that the anesthesia had entirely passed off in this region of the body. Before the deep sutures were all in place the numbness had entirely passed from the toes, as was proved by the fact that when moved against each other the sensation appeared to be entirely normal. At this period my courage for a moment failed, and I begged for a few inhalations of chloroform, but was assured that the operation would be completed in five minutes, so took a new grip upon myself and endured to the end.

The second operation consumed just twenty minutes. There were no complications encountered in this case, and as I was suffering so acutely, every one connected with the operation worked as rapidly as possible, that they might the sooner bring my suffering to an end.

The whole surgical procedure consumed just fifty-five minutes: three for the anesthesia and fifty for the operations. At no time while under the anesthetic effect of the drug was there any acceleration or



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diminution of the heart action or respiration; neither was there any stimulation nor depression of the mental faculties. The headache so frequently complained of for several days or weeks did not occur in my case. The only unpleasant after effects experienced from the operations was the accumulation of gas in the stomach and bowels, that so frequently follows abdominal operations and which is in no way related to the kind of anesthetic employed.

**Conclusions.** From this experience with spinal anesthesia I am led to the following conclusions:

First.—That spinal anesthesia is a safe and reliable method of producing insensibility to pain in certain surgical operations in normal individuals.

Second.—From the fact that this method used with the usual dose does not seem in any way to disturb the cardiac or respiratory nerve centers, it would be indicated in those cases in which chloroform and ether would be contraindicated.

Third.—That for all operations below the diaphragm which do not consume more than thirty minutes for their completion it is a most admirable method of anesthesia.

Fourth.—In operations above the diaphragm it would seem to be of doubtful utility with the dose usually employed. Morton is in the habit of making the injection with considerable force and elevating the lower extremities when using this method if the operation is to be upon the upper portion of the body, and he claims to be successful. In the case referred to in the body of this article as having fracture of the mandible, Morton's method did not give the desired result. It is possible, however, that by increasing the dose, anesthesia of the head might be successfully secured, but as I have had no experience with a larger dose than one grain, I would not hazard an opinion upon it.

Fifth.—It would not be wise to use this method of anesthesia in the case of patients who have a great nervous dread of surgical operations and in whom the consciousness of being operated upon might produce mental shock, or in the case of patients who could not be controlled by reason.

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### Some Suggestions for Dental Colleges.

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By L. P. HASKELL.

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During the seventeen years of the Haskell Post-graduate School, graduates of nearly all the dental colleges have taken the course, many



of whom have been in practice for years, and yet at least seventy-five per cent. of them have never put in the mouth a metal plate.

So far as I could learn, the reason therefor was that the instruction in the line of work was so imperfect they had not sufficient confidence in their ability to construct such a denture to venture to recommend it to their patients, and so resorted to the vulcanite plate. I will suggest some of the causes leading up to this state of affairs.

Too much of the student's time is taken up in the lecture room in the effort to tell him how to do some mechanical thing. It is all labor lost. The only place to teach it is at the bench, tools in hand, under the eye of a *competent, experienced* demonstrator, for it is too often the case that the demonstrator is inexperienced. Then again he should be constantly on the alert, watching the students and taking the work in hand if necessary.

Instruction too often is not simplified, and much of the student's time is taken up in fruitless efforts to do what should be made a simple thing. I will illustrate some points:

The student should be told to make his model flaring so it will drop from the mold; it should never be lifted out.

Abandon the use of the Bailey flask for molding ring, for it is too small and ill-shaped for proper work. Provide a ring five inches in diameter and two and a half inches deep. The Buffalo Company have such a ring, also the Justi branch house. A small wood potato masher with knob whittled off, will serve to use at the sides of model and large end on top.

Each student should have a molding box fifteen inches square, six inches deep. Buy a can of Chase oiled sand, use Babbitt metal, two pounds, counter die metal, four pounds, five parts lead, one part tin: this not to be poured hot as it comes from the heater, but stirred until it begins to crystallize, then pour quickly, having coated the die with moist whiting dried and placed where it came from in the sand mold, but inverted, and the sand pressed with the spatula to just above where margin of plate would be; then place over it the Bailey flask.

Do not use German silver for plates, but soft brass, gauge No. 28, cut in strips two and a half inches wide.

Do not set the student to work with the usual horn mallet with its pointed end, which is worthless, and its large end equally worthless. Saw off the pointed end where it is three-quarters of an inch in diameter and round it with the rubber file. This is ready for use on the palatal surface and along the margins. After swaging the tuberosities and palatal surface, cut a slit from the margin at the median line to the top of the ridge, lap, swage and solder, laying the solder on the inside



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and applying the heat on the outside, previously prying apart the lap and applying the borax in plenty, swaging again. The reason for cutting and lapping is two-fold; here is the weakest point where the plate often breaks. The lapping increases the strength one hundred fold. Then again, in undercut conditions much time and bother is saved. There is no valid reason for not cutting and lapping.

To prevent the base metal from adhering to the plate, oil the dies, and before annealing again wipe off the base metal.

Wiring the plate is simple. Attach the wire along the right margin for about an inch with two small iron wire clamps, doubling the wire with flat-nosed pliers, so as to have a loop at the bend. Having flattened the ends, borax and solder, fitting with the pliers to the margin of the plate an inch and a half at a time, with plate on the die; clamp and solder fully till completed. Be sure the borax is plenty or the solder will not flow, and the wire will melt. When soldered, file the margin to a finish. Use a six or seven inch file, half round, No. 3, with handle.

The student following the directions will have no trouble and expedite work.

It is just as easy to fit successfully a metal plate as a vulcanite one; in fact, in the flat ridgless jaw, more easy.

### **Gold Inlays for Incisors and Cuspids, A New Method.**

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By J. ALLEN JOHNSON, D.D.S., Middletown, Del.

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In many of the cases of badly broken down cuspids and incisors coming under our observation, the bite is such that the use of porcelain for the restoration of corners is contraindicated; not that we do not possess adequate skill, but the limitation of the tensile strength of porcelain is such that we feel that such a restoration will ultimately result in a failure. This is especially true where the patient is of a vigorous temperament and a pipe smoker.

It is the purpose of this article to deal with those cases wherein the process of decay has gone to the point where devitalization is indicated as a conservative operation, although the inlay method herein described may as readily be applied where the pulp is vital, retention being attained, as with the porcelain filling, without the screw-post.

We will take as our first illustration a superior central incisor having a very large mesio-incisal cavity, pulp removed and apical foramen sealed.





After reaming out root canal to readily take a platinous gold post, gauge 14 to 16, prepare the cavity as you would for a porcelain filling except that the mesio-incisal corner should be slightly beveled to afford extra protection to the enamel edge. You will now take an impression of the cavity with dental lac and obtain a die or cast of the cavity in the inlay metal for sale by the S. S. White Dental Manufacturing Company. This die or cast in the swaging ring is placed in the inlay swager and 36 gauge pure gold is swaged over it. The inlay matrix thus obtained should be returned to the tooth cavity and burnished to an exact fit.

Having the matrix in place the platinous gold post is pushed through to a position in the root canal and hard (or sticky) wax flowed around post on floor of matrix to unite them in order to facilitate their withdrawal without change of position. After investing the canal portion of post and the under side of the matrix, flow 22 k. solder around post to replace the wax on the floor of the matrix. Replace matrix in tooth cavity and cut off excess of post.

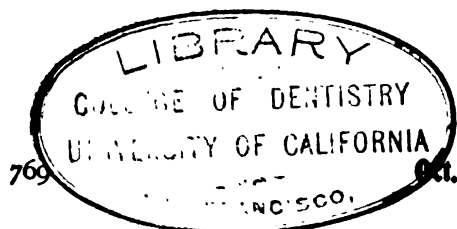
With hard wax now restore the tooth to full contour (less the thickness of 36 gauge plate), giving the wax a glazed surface by means of hot air.

From 36 gauge 24 k. plate, cut an oblong strip, sufficiently long to cover cervical margin of cavity and extend one-eighth of an inch below the incisal edge, and wide enough to extend from the labial margin and cover the mesial surface of wax.

This strip is now placed between the wax filling and adjoining tooth, and with the fingers and double end burnisher is brought smoothly over the wax, cutting the lower edge, to facilitate the restoration of the contour. The assembled parts are carefully removed from cavity and lightly invested, so that the heat directed from below will flow the 22 k. solder dropped through the opening on lingual surface.

After trimming the inlay with curved shears it should be cemented in cavity where with stones and disks the operation is concluded. The total time consumed should not exceed one and a half hours, regardless of the size of the cavity.

The very secure anchorage of an inlay or filling having a post makes it an ideal abutment in the centrals and cuspids for the support of a lateral incisor.







## **The Physiological Action of Some Local and General Anesthetics with a Comparison of their Practical Value.**

By HENRY H. BOOM, M.D.

*Read at the Meeting of the Southern Dental Society of the State of New Jersey,  
at Camden, N. J., on March 20, 1907.*

From the advent of surgery, the humane operator has sought for means to render his patient non-resistant to necessary manipulation, and to relieve, as fully as possible, the pain occasioned by his treatment. In the records of early and crude surgical work we find that a number of expedients were used for this twofold purpose.

Bleeding the patient until, from loss of blood, fainting occurred was a highly commended procedure preceding the reduction of a dislocation.

A number of drugs were employed, often in poisonous dose, to secure a condition of the patient favorable for the surgeon's work.

Even within the last half century the unfortunate patient was first made gloriously drunk, and then positively poisoned with alcoholics, to secure in him a passive or relaxed muscular condition, with an accompanying insensibility to pain.

All such measures were, of course, followed by effects which frequently made the work of the surgeon more harmful than beneficial to the patient.

### **First Experiments in Anesthesia.**

The history of anesthetics carries us back to the latter part of the eighteenth century, when, in 1776, the Rev. Joseph Priestley, of Birmingham, England, first prepared nitrous oxid gas and de-



scribed some of its properties, and in 1798 Sir Humphrey Davy, then twenty-two years of age, prepared and inhaled nitrous oxid gas to lessen the pain accompanying the eruption of a wisdom tooth.

In 1842 Dr. Crawford W. Long, of Georgia, used ether by inhalation for producing anesthesia for surgical operation. On December 9, 1844, at Hartford, Conn., a popular lecturer, Dr. Colton, gave a lecture upon the chemistry of nitrous oxid and other gases, having among his audience two young dentists of that city, Horace Wells and John Riggs. Several of the audience were invited by the lecturer to inhale the gas, and one, a young man, received a severe injury while recovering from the anesthetic, yet suffered no pain from his mishap, which so impressed Wells that on the following day he, accompanied by his friend, visited Dr. Colton, inhaled the gas, and while unconscious had a molar painlessly extracted. In 1846 Dr. W. T. G. Morton, a dentist, used ether for dental extractions and major operations: Sir James Young Simpson used chloroform in 1847 for anesthetic purposes.

The further history of anesthetics, local as well as general, is interesting, but hardly in place in a paper of this character.

An anesthetic might be defined as an agent which, without impairing the performance of the vital functions of circulation and respiration, produces absolute unconsciousness with insensibility to pain, loss of power over the voluntary muscles, and diminution of reflex excitability.

It is obvious that the agents grouped as local anesthetics would be better named as analgesics or agents for the relief of pain.

Local anesthesia, over restricted areas, may be brought about by, first, the application of intense cold, usually through the rapid evaporation of volatile substances applied to the part; second, the local application, or injection, of drugs. The advantages of local anesthesia over general anesthesia are summarized by Dr. Thomas D. Luke in his recent work "Anesthesia in Dental Surgery" as:

1. The lower rate of mortality.
2. There is no need for assistants (or witnesses in the case of female patients), as, there being no period of excitement or struggling, the patient need not be held.
3. The analgesia lasts long enough to prevent the patient feeling the after pain of the extraction.
4. No apparatus of a complicated character is required.

Refrigerating agents used to produce local anesthesia include chlorid of methyl, chlorid of ethyl, and various proprietary preparations, as anestile (Bengue), coryl, etc., containing varying proportions of the methyl and ethyl chlorides.



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### **Methyl Chlorid.**

Chlorid of methyl is retained in liquid form only when inclosed in strong metal bottles. When it is to be used a small quantity of it is mixed with ether and applied by a cotton tampon, with a wooden handle, to the gum for from one to two minutes, when, on its removal, a white spot will be seen upon the mucous membrane and the gum will be insensitive.

A spray of chlorid of methyl upon the gum occasions so marked a lowering of temperature—58 to 70 degrees Fahrenheit—that it is unsafe, as it may produce a marked disorganization of the tissue, even to the formation of a complete eschar.

The addition of ether lessens its too great refrigerating effect, but at the best it does not prove so efficient to the dentist as the ethyl compound.

### **Ethyl Chlorid.**

Chlorid of ethyl is usually sold in glass cylinders holding one to two ounces of this very volatile liquid. These containers are often made of metal.

They terminate at each end in capillary tubes, the one used as the exit tube having a very small opening.

In using chlorid of ethyl the surface of the gums is dried with cotton and the fauces are protected with cotton, when a spray from the capillary opening of the tube is directed upon the gums, holding the tube twelve inches from the face, until a white patch appearing shows the accomplishment of the freezing. The use of the agent now stopped, the operator waits until the natural color is regained before extraction.

Chlorid of ethyl is useful when a number of loose and fragmentary roots are to be removed.

Refrigerating agents are not to be employed:

1. When the patient can only breathe with difficulty through the nose.
2. When the patient is a young child or is nervous and timid.
3. If the tooth to be removed, or one close by, is sensitive to cold.
4. When the pain produced by the extraction may last a long time, as in acute periodontitis, an extensive extraction, the removal of a large molar with separate roots.
5. When the tooth to be removed is a second or third molar.
6. Freezing agents are especially contraindicated for the extraction of the lower molars, more particularly when the patient has a tendency to the excessive secretion of saliva.
7. Freezing methods are inadmissible when the actual cautery is to be used.



In some instances it may be advantageous to combine the use of refrigerating methods with the employment of cocain or other drug.

**Local  
Application of Drugs  
for Analgesia.**

The drugs employed locally for relief of the pain of extraction include cocain, eucain, tropacocain and many patented artificial alkaloids, as stovain, holocain, nirvanin, anesthesin, alypin, subcutin, acoin, etc. With most of these adrenalin may be combined. Cocain as cocain hydrochloridum has unquestionably the largest use for allaying pain of extraction of any of these agents.

**Cocain.**

This, and allied substances, when in solution, readily and rapidly diffuse through mucous surfaces, upon which they are applied, so, according to Horatio C. Wood, "it is not safe to put upon mucous membranes quantities which if given hypodermically would be dangerous, so that not more than three-quarters of a grain should be used locally.

Potter states that in general action cocain and its salts very closely resemble atropin: its symptoms almost parallel those of spartein: it is very nearly a complete antagonist to morphin, especially in the second and third toxic stages of the latter. Hare tells us that loss of speech, blindness, nausea, vomiting, syncope, unconsciousness have followed the local, as well as the internal, administration of cocain. He also makes the statement that of two hundred and fifty cases of accidenta poisoning from cocain but thirteen proved fatal.

In the last edition of his work on therapeutics Prof. H. C. Wood gives the following summary of the physiological action of cocain:

"It is a cerebral stimulant producing peculiar mental excitement, ending, after a toxic dose, in narcosis, with epileptiform convulsions probably of centric origin.

"In the poisoning there is at first increased reflex activity, followed by paralysis of voluntary motion and of reflex activity, which are chiefly due to a direct action upon the spinal cord, the sensory side of the cord being probably more sensitive to the drug than the motor side.

"Toxic doses depress and finally paralyze the sensory nerves, and, in a much less degree, the motor nerves.

"Cocain in moderate dose is a mild stimulant, in overdose a depressant to the circulation, the primary rise being chiefly due to the narrowing of the blood paths by stimulation of the vasomotor centers.

"Upon the heart itself the moderate dose of the alkaloid acts as a stimulant, increasing to a slight extent the amount of force put forth by the heart.

"There is also reason for believing that cocain exerts a direct influence upon the coats of the blood vessels, which is of so feeble a char-



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acter as to be of practical importance only in the local use of the remedy.

"The fall of blood pressure produced by the toxic dose of cocain appears to be due to a direct depression of the heart itself, aided by a widening out of the blood paths, probably through paralysis of the vaso-motor centers.

"Upon striated muscle cocain appears to have a peculiar though very feeble action.

"It has no definite influence upon the amount of urine secreted.

"On the eye it acts energetically as a mydriatic.

"It is a powerful stimulant to the respiratory centers, increasing the rapidity and fulness of respirations; but if the dose is sufficiently large it, after a time, causes the respiration to become very shallow and finally it paralyzes the respiratory centers.

"Moderate doses are said to increase, large doses to paralyze peristalsis."

The dosage of cocain is as follows:

Internally, one-sixth to one-half grain; locally, in from one to ten per cent. solution, of which never more should be applied to mucous surfaces or injected than would represent one-half to three-quarters of a grain of the drug.

### **Toxic Symptoms with Cocain.**

Toxic symptoms produced by cocain are thus described by Thomas D. Luke: "Trembling in the limbs, especially the lower extremities; headache; vertigo, pallor; a cold moist skin, feeble rapid pulse; which in grave cases becomes imperceptible; slow shallow respirations, incoherence of speech, nausea, vomiting, unconsciousness, tremors, and other muscular spasms, epileptiform attacks, dilated and unequal pupils, and disturbances of the circulation, ending in dyspnea and death by asphyxia."

Prof. H. C. Wood groups the toxic symptoms in the following manner: "In the mildest cases of cocain poisoning—great restlessness and nervous excitement with a condition of terror, pulse usually accelerated, and respirations increased in frequency, with, perhaps, muscular twitchings or even slight convulsions.

"In severe cases—nausea, vomiting, rapid almost imperceptible pulse, marked perspiration, collapse, with or without loss of consciousness."

"Other cases have presented a pulse slow and feeble, cyanosis, respirations slow, almost arrested, pupils are usually dilated, but exceptions are noted.

"After very large doses of cocain, convulsions are usual, often, violent, with pronounced opisthotonos; mania may occur, with hallucina-



tions. Treatment of poisoning from cocain must be conducted along one of two almost diametrically opposed lines, according to whether the symptoms presented be those traceable to cardiac or respiratory failure, or whether they be largely those referable to the nervous system."

**Treatment of  
Toxic Symptoms  
by the Dentist.**

The dentist will find the majority of such cases coming under his attention to be of the syncopal character, and he will treat them by placing the patient in a supine position with the head low, giving a hypodermic injection of digitalin (1-64 to 1-32 of a grain), or of strophanthus (10 minims of the tincture), and at the same time administer aromatic spirits of ammonia or whiskey by the mouth. The patient should be kept warm, and, such means failing to overcome the condition, the intravenous injection of ammonia and of saline solution and the employment of faradism will be properly conducted by a competent medical confrere.

The treatment of cocain poisoning in which the nervous symptoms predominate is conducted along the lines mapped out in cases of strychnia poisoning: chloroform is administered by inhalation until a partial degree of anesthesia is secured; for the relief of convulsions chloral is administered cautiously by the mouth or in enema: bromid of potassium may be employed in large doses, and warm baths may prove of service.

At the fourth International Congress of Dental Surgery held at St. Louis, Dr. Sauvez, of Paris, made the positive statement that "if more than a cubic centimeter (16 minims) of a one per cent. solution of cocain is used the patient should be placed in the supine position, and should remain resting for a considerable time after the operation is completed."

**Adrenalin  
Combined with  
Cocain.**

Adrenalin, as adrenalin chlorid, is sold in solution of a strength of one part in the thousand.

This substance is a remarkable vasomotor constrictor, and when its 1-to-1000 solution is applied to a part admits of operation upon that part untended by loss of blood.

The addition of adrenalin to cocain solution exhibits the following advantages: It renders the region to be anesthetized bloodless; it increases the local action of cocain, while lessening its constitutional action; analgesia is practical in soft and inflamed tissues, and is more pronounced and lasting in healthy ones; no bleeding follows the extraction of the tooth, no syncopal or cerebral symptoms occur as sequellæ (Battier and De Nevrez). The composition of this combined solution for dental use may be:



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One part of cocain hydrochlorid.

Five parts of the 1-to-1000 solution of adrenalin.

With water to make 100 parts.

Eucaïn as a local analgesic has to a considerable extent replaced cocain.

### **Eucaïn.**

Eucaïn is an artificial alkaloid and occurs in two modifications, the alpha and beta eucaïn. The latter is the preferable, being less of an irritant than the alpha eucaïn.

The chief advantages claimed for eucaïn are tabulated by Luke ("Anesthesia in Dental Surgery") as follows:

1. It has only one-fourth the toxicity of cocain.
2. Its exhibition is followed by no unpleasant nor dangerous after effect.
3. Its action is more constant and lasting than that of cocain.
4. It does not undergo decomposition on boiling, and so can be rendered permanently sterile in solution.
5. Its price is but half that of cocain.

It is, however, less soluble than cocain, more irritating, slower in action, so that after its injection for an extraction the operator must wait at least ten minutes.

An addition of adrenalin to eucaïn solution largely overcomes its irritant action.

Its dose, 15 to 20 minims of a two per cent. solution, is sufficient for the extraction of a single tooth.

Parke, Davis & Co.'s "eudrenin" is a sterilized solution of B-eucaïn with adrenalin. Wohlgemuth, Pouchet and Sauvez each state that they have found eucaïn as toxic as cocain and less efficient. Reclus has used eucaïn on over four thousand occasions without bad effect.

A formula of eucaïn solution of frequent use is:

|                                 |                               |
|---------------------------------|-------------------------------|
| B-eucaïn hydrochlorid .....     | 3.5 grammes                   |
| Natrium chloridi .....          | 7.0 grammes                   |
| Distilled water (boiling) ..... | to make 500 cubic centimeters |

Stovain is the trade mark of a synthetic derivation of the amino-alcohols. Potter states its toxicity to be but half of that of cocain. It is not injured by boiling, but is destroyed by alkalies; it can not be combined with adrenalin. Unlike cocain, it can be used with some freedom while the patient is in a sitting position. It is employed in a three to four per cent. solution in distilled water.

### **Stovain.**



**Tropa-Cocain.** Tropa-cocain is said by Potter to be less toxic than cocain. Sauvez declares it as toxic and less efficient than cocain. Dorn, a German dental surgeon, reports its use in over three hundred cases with good results, and in no case with toxic symptoms. He uses it in three to four per cent. solution, injecting from ten to thirty minims in three to five punctures, in the direction of the roots of the teeth. The analgesia obtained lasts about ten minutes.

**Anesthesin.** Anesthesin, the ethyl-ester of paramido-benzoic acid, insoluble in water, but soluble in alcohol, ether and oils, is less toxic than cocain: analgesia from its use lasts longer.

**Nirvanin.** Nirvanin, a patented coal tar derivative, has but one-tenth the toxicity of cocain (Potter), can be sterilized by heat, is antiseptic, non-irritant, and is used in two to five per cent. solution in water.

**Ethyl Chlorid.** Ethyl chlorid, as a general anesthetic, has, within the last few years, been widely extolled as an efficient safe anesthetic, whose effects, like those from nitrous oxid, are of but short duration.

In a study of its physiological effects Professor Hare describes it as an agent producing, by an inhalation of from one to two drams, an anesthesia lasting five to ten minutes. During the anesthesia the pupillary and corneal reflexes are not lost, muscular relaxation is absent. The after effects are slight, vomiting occurring in a few instances. A study of one thousand six hundred administrations of the agent by Seitz shows but one death, an individual suffering from disease of the coronary arteries.

Dr. H. C. Wood mentions a collection of eleven thousand two hundred and seven cases by Ware showing but one death traceable to this agent.

Professor Potter describes ethyl chlorid as rapid, efficient and safe, for short operations, if used with exclusion of air. The anesthesia is produced in from one to two minutes, when the inhalation is discontinued; the risks are slight, even in patients with unsound heart or lungs; it does not produce muscular relaxation.

Its mortality is one in fifteen thousand cases. It may give rise to erotic sensations resulting in false accusations, and should not be used for women except in the presence of a witness.

We might continue to cite laudatory notices of this comparatively new anesthetic, but it is time that we examined the reverse of this pleasing picture, when we find in a recent publication (Dr. Thos. D. Luke's





"Guide to Anesthetics," 1906) a list of twenty-four deaths ascribed to ethyl chlorid used by inhalation. Eight of these deaths occurred during dental operations.

Those who use ethyl chlorid insist upon the necessity of excluding air during the administration. It is not as safe as nitrous oxid, but when used in proper amount and its length of administration carefully gauged it is probably far safer as an anesthetic than ether or chloroform.

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## **Some New Ideas in Porcelain Work.**

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By Dr. LIONEL M. HOMBURGER, New York City.

*Read before the Central Dental Association of Northern New Jersey.*

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Your committee asked me to read a paper on the removable post all-porcelain crown which I had the pleasure of exhibiting some time ago. This I promised to do, but as the handling of a single subject like that would necessitate an abnormally short paper, I decided to call my paper, "Some New Ideas in Porcelain Work," and to incorporate some other thoughts as well, which I hope will be of interest as well as bring out a very instructive discussion.

We all know how impossible it is to accurately fit one of the ready made porcelain crowns, at present on the market, to the root of a tooth, by means of grinding. True it is that we can build up these crowns to accurately fit the root by means of porcelain, thus making a close-fitting joint. But if we overcome this difficulty we meet another due to the fact that the molds from which these crowns are made are limited in number. Therefore the selection of both shade and shape is not as easy as, for instance, in choosing plain porcelain teeth for vulcanite plates.

For some time past I have employed the following method which surmounts all these difficulties.

### **Method of Making Porcelain Crown.**

The root is prepared in the usual manner, and then a piece of inlay platinum burnished over the root end. A piece of round iridio-platinum wire, of suitable length, thickness and strength for the post of the crown, is rolled up in some platinum foil, in the same manner that a stick of candy is rolled up in paraffin paper. This is thrust through an opening previously made in the platinum, over the end of the root. These two pieces are now cemented together with sticky wax, so as to hold them in proper relation. A rubber tooth is now selected of the correct shade and mold, and ground and fitted to the patient's root. This fitting completed, the pins are bent around the post



by means of a pair of pliers. The whole is then carefully removed from the mouth and the root of the post invested in equal parts of plaster of Paris and very finely ground silex. The investment is carried up to the platinum floor and then trimmed so that it will stand with the incisal edge of the porcelain tooth pointing upward. The sticky wax is removed and the tooth packed with porcelain of the correct shade, put in the furnace and fused. This is repeated until it has been built up to the required height and contour.

The platinum foil is then peeled off the cervical end of the finished crown and the post is grasped in a pair of flat-nosed pliers and pulled forcibly out of the crown. The bit of platinum foil, which has been wrapped around the post, remaining in the crown, is removed with a small round bur rotated in the engine. The posthole and the cervical floor are now etched with hydrofluoric acid. The post is roughened by rolling it on a table under a file and it is then cemented into the crown and the root in one operation. The result is a perfectly fitting crown.

**Cipping Broken  
Corners.**

For a still longer time I have employed a similar method for replacing broken tips and corners in devitalized teeth, as follows:

The cavity is prepared and a short hole is drilled into the root canal. A matrix is made, and through the matrix an iridio-platinum post, covered with platinum foil as above described, is thrust into the root canal and cemented to the matrix with wax. By taking hold of the free end of the post with a pair of foil carriers the post with the adhering matrix is easily withdrawn from the cavity. This is invested and the porcelain tip is built around the projecting end of the post. When finished the matrix is peeled off, the post withdrawn etched with hydrofluoric acid and cemented into place.

The great advantage of this form of inlay over one with a solidly baked-in post is that it is stronger.

We all know that the weakest point in an artificial tooth is at the pins: In this respect inlays do not differ materially from artificial teeth, and as a matter of fact they are more liable to fracture, as the porcelain used for inlay work is not so strong as that used for teeth. Even if ground up artificial teeth are used the inlay will not be as strong, because artificial teeth are molded under pressure and baked by men who do nothing day after day but bake porcelain; whereas inlays are made by men who only occasionally bake porcelain and therefore frequently overbake or underbake the mass.

Knowing this to be true, I deem it extremely ill-advised to bake any form of post, pin or dowel into an inlay, unless the same is *absolutely*



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necessary, and I can say that in the past six years I have never run across a case in which it was necessary.

This being the case, I will give you the method I employ for replacing tips and corners when the pulp in the tooth is healthy and alive.

### **Clipping Vital Teeth.**

I recently had the pleasure of seeing one which I had made six years ago, which not only was in perfect condition, but in the entire time had never come out once.

The cavity is first cleared of all decay, shaped and prepared. At both extremes of the cavity a small hole is drilled into the tooth large enough to accommodate a piece of No. 24 gauge iridio-platinum wire. This is bent in the form of a loop, so that each end will fit into the hole drilled into the tooth. The ends of this loop are now roughened and cemented into the holes of the cavity with oxy-phosphate cement. The cement is carried over the entire loop covering it effectually, the sides being made parallel, or better still, brought to a slight taper. A matrix is made over this entire cement mass either by burnishing or by the impression method (preferably the latter). In this matrix an inlay is built, and when finished the matrix is peeled off and the interior of the inlay roughened with hydrofluoric acid.

With a bur we now remove all the cement around the loop in the tooth, except at the ends where it is fastened. The inlay is now ready to cement into place.

### **Method of Drilling Porcelain.**

In shallow inlays I give additional anchorage by undercutting the cavity in the porcelain, with carborin (a preparation composed of finely ground carborundum moistened with glycerin). The instruments for undercutting are made from worn-out inverted cone burs, put into the handpiece of the engine, and while revolving are held against a stone until all the blades are ground off. I keep these in various sizes in stock, and by revolving these in the inlay cavity filled with carborin an undercut is quickly effected.

### **Matching Teeth with Porcelain.**

Before closing my paper I will touch upon one more topic, and that is an accurate means of matching teeth with porcelain. The method is not original, but it is very good, and I can thoroughly endorse it, having tried it for some time past.

Whenever you mix up any porcelain colors always weigh out the ingredients on a scale, and jot it down on a note book kept for that purpose. Bake a sample button, or better still, a small piece with a hole in, which is more easily mounted and preserved. Give each button a number which corresponds with the number in your note book. In



making an inlay it is only necessary to select a suitable shade from your home-made shade-guide, refer to the number in your book, and weigh out the ingredients. Provided you bake at the same temperature, you will always get uniform results.

This method may at first be somewhat irksome, but when you have gotten together a goodly collection, your saving in time will be incalculable.

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### **Report of Committee on Chemistry and Therapeutics. Alabama Dental Association.**

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By DR. WM. A. LOVETT, Brenton, Ala.

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In making my report as chairman of the Committee on Chemistry and Thereapeutics, I desire to say that the work of the committee has been very much handicapped by a lack of co-operation among its membership. I am not criticizing anyone, for I appreciate the fact that attention to our practices to the exclusion of all other things prevents many of us from doing associational work, even though it has our hearty sympathy and indorsement. The fact that our association has no available funds with which to defray the expense of practitioners from a distance, prevented us from securing one of the most eminent men in the profession for an illustrated lecture on the "X-Ray in Dental Therapeusis and Practice." We feel, however, that we are fortunate in securing the consent of Dr. James S. McLester, a specialist on internal medicine and diagnosis, to read a paper on "Diseases of Metabolism as Manifested in the Oral Cavity" at this meeting.

My report is a résumé of the different papers that have been presented to the profession during the past year on subjects that come within the scope of the work of this committee, and of the various therapeutical agencies that have been recommended for specific purposes. I have no doubt that most, if not all of you, have seen the journal prints containing these recommendations, and my only excuse for again bringing them to your attention is that having tabulated the remedies under the heads of disease conditions for which they are advocated, they are better arranged for ready reference than if scattered through a host of dental journals.

It is the opinion of your chairman that a Committee on Scientific Research should be organized, with power to conduct investigations as they may deem expedient, and to place at their disposal sufficient funds to defray expenses of stationery, postage, etc., that the work may be



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carried on to advantage. I should be glad to see such a committee furnished with a complete chemical and physical laboratory, or at least such apparatus and chemicals as may be essential to the thorough investigation of any subject they may deem advantageous to critically examine. Such a committee exists in the Dental Society of the State of New York, and their report in the October, 1906, *Cosmos* shows that they are accomplishing results in research work that could not be otherwise attained.

While dental surgery has been divided into specialties, I am glad to see that the importance of medical agencies for the relief of pathological oral conditions, both by topical and systemic administration, has not been overlooked, but on the other hand the thinking men of the profession are turning their attention to this kind of treatment and are becoming better acquainted with the relationship existing between functional disturbances of the human body and the teeth and oral secretions. The time has come when we must know that in abnormal conditions of the teeth, gums and saliva there is manifested faulty metabolism, and it is our duty to know how to locate the trouble and treat it correctly, or refer the patient to the family physician. Oftentimes we may detect grave functional disturbance in its incipency, long before manifestation becomes such as to cause our patients to seek the advice and services of their physician. Our patients, therefore, have the right to expect and demand of us that thoroughness of knowledge and preparation that will make us competent to protect them against dangerous delays in the rectification of pathological metabolic conditions. The progress that has been made along these lines is evinced by the numerous able papers that have appeared in our journals during the past year.

### **Pharmaceutical Nomenclature.**

I have noticed in many instances in our dental literature, that writers very frequently use incorrect names of drugs and medicines. We should remember that there are but two standards in this country on whose authority we may implicitly rely for correct pharmaceutical nomenclature, and these are the *United States Pharmacopoeia* and the *National Dispensatory*. All other works on pharmacy and materia medica depend on these products of specially appointed committees of the leading chemists and pharmacists of our country for the correct names of drugs and chemicals. These errors are often so misleading that we are totally at a loss to know just what remedy is intended and your druggist is liable to either question your sanity or ability should you attempt to procure an improperly named preparation. I know of no better way of convincing your druggist of your ability than by correctly written and efficient prescriptions. Many graduates of medical colleges are woefully deficient in this important part of their work, but this is no excuse for the dental sur-



geon to be likewise ignorant. Never write what is known as a "shot gun" prescription, that is, one that has a number of remedies directed to be mixed together, with the hope that some one of them may accomplish your desires. First know what you have to treat, and then prescribe the simplest and best remedy. Never, under any circumstances, guess at doses, always avoid incompatibles. I would also warn you to be cautious in accepting new remedies, and especially new anesthetics.

**Digest  
of Current  
Literature.**

Of the large number of papers that have been published during the current year, I would call your attention to the following, and if, for any reason, some of you have not read them, I would commend same to your thoughtful and careful attention.

"The Downfall of Therapeutics," pp. 729; "Anesthetics," pp. 759; "Tonsils as Lodging Place for Germs," pp. 728, July, 1906, *Dentist's Magazine*.

"Adrenalin and Cocaine in Crown and Bridge Work," pp. 895, and "Thorough Mastication in Treatment of Chronic Diseases," pp. 893, August, 1906, *Digest*.

"Dental Caries Causing Functional and Organic Diseases," by Percival E. Loder, pp. 594, June, 1906, *Digest*.

"Some Pathological Changes in Alveolar Abscesses and Their Treatment," by George W. Cook, January, 1906, *Digest*, pp. 72.

"The Use of the Blue Light in the Reduction of Swelling and the Alleviation of Pains, by J. C. Watkins, January, 1906, *Digest*, pp. 78.

"Treatment of Putrescent Teeth and Permanent Root Filling," by N. N. Wycoff, January, 1906, *Digest*, pp. 87.

"Treatment of Suppurative Affections of the Face and Neck Emanating from the Mouth," by M. I. Schamberg, January, 1906, *Digest*, pp. 29.

"Medical Phases of Dental Disorders," by Samuel A. Hopkins, September, 1906, *Digest*.

"Are We Right or Wrong in the Treatment of Putrescent Pulps," by E. M. Kettig, September, 1906, *Digest*.

"Dental Therapeutics," a series of articles by Dr. Geo. W. Cook, in *American Dental Journal* for 1906.

"The Relation of Systemic Diseases to the Condition of the Oral Cavity," by J. E. Power, October, 1906, *Digest*.

"Syphilitic Lesions of the Oral Cavity, with Treatment Defined," by J. A. Pelkey, *Digest*, October, 1906.

"Local Anesthesia and Anesthetics as Employed in Dental Extractions, Rhinological and Minor Operations," by D. L. Smith and J. T. Hughes, reprint in October, 1906, *Digest*.



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"Ludwig's Angina," by Chas. A. Cuthbert, reprint in *Digest*, October, 1906.

"The United States Pharmacopœia," by J. P. Buckley, reprint in *Digest*, October, 1906.

"Report of Two Cases of Infantile Scurvy, with Treatment," by Alice M. Steeves, pp. 1160, November, 1906, *Digest*.

"The Relation of Dental Conditions to Pulmonary Tuberculosis," by F. L. Dodd, reprint in *Digest*, December, 1906, pp. 1312.

"Etiology and Treatment of Chronic and Acute Empyema of the Antrum of Highmore," by Herman Stalte, M.D., *Cosmos*, January, 1906.

"Therapeutics of Pyorrhea Alveolaris," by Dr. Elgin MaWhinney, January, 1907, *Digest*, pp. 73.

"The Treatment of Sensitive Dentin, with Special Reference to the Production of Anesthesia by Pressure," by W. D. Miller, *Digest*, January, 1907.

"The Pathology of Pyorrhea Alveolaris and its Causation, with suggestions for Treatment," by W. F. A. Shultz, *Digest*, January, 1906.

Series of papers on "Therapeusis and Treatment of Interstitial Gingivitis Due to Auto-intoxication," by Dr. Eugene Talbot in *Digest*, 1906.

I would especially call your attention to a series of articles on "Echinacea purpurea, Echinacea angustifolia, Eschafolta," beginning in the November, 1906, *Dental Review*, by Dr. A. C. Hewitt. Some very remarkable therapeutic values are claimed for this preparation, which is prepared by Lloyd Bros., of Cincinnati, and every dentist should investigate the claims made for it.

I would also direct your special attention to a paper in the March, 1906, *Digest* on "Drugs and Their Combinations," by Dr. J. P. Buckley.

I now come to that portion of my report in which I have arranged alphabetically pathological conditions for which special therapeutical agencies and operative treatment have been suggested. I have omitted in many instances the names of the journals from which these suggestions were taken, for the purpose of saving time and space.

### Abscesses.

In cases of sinous abscesses, in which there is only a sinous without much tissue degeneration around the apical end of the root, Dr. Geo. W. Cook states that he has had considerable satisfaction from the use of guaiacol carbonate, a combination of guaiacol and phenol. This agent, he says, has sufficient antiseptic power to destroy the form of bacteria that usually enters into such processes, is but little escharotic



and a mild stimulant to the tissue cells. It is a mild disinfectant, and is also valuable in the treatment of certain antrum troubles.

In abscesses having no sinus, the use of this preparation is contra-indicated, as it might prove slightly irritating, because it has been observed that when this agent is confined to the root of a tooth, at body temperature, it sometimes becomes sufficiently volatile to penetrate the tissues and establish a condition that we wish to avoid, namely, acute inflammation.

In the so-called blind abscesses in which there is but little destructive tissue change at the dental apex, and in which possible discoloration of the teeth is of no special consequence, he uses a ten or fifteen per cent. solution of chinisol. If the discoloration of tooth structure is to be avoided, it should not be used. Chinisol is distinctly valuable as a germicide when brought in contact with such bacteria as are usually found in chronic alveolar abscesses, in which there is a slight but continuous degeneration of the tissue.

Chinisol may also be said to be beneficial in cases of antrum trouble having but little pus formation. When introduced into large pus cavities, it is rapidly neutralized by the pus, and better results may be obtained from the use of guaiacol carbonate. (See article by Dr. Cook, June, 1906, *Digest*, pp. 573.)

He also recommends the use of thymol dissolved in oil of eucalyptus in mild forms of chronic blind abscess.

### **Local Anesthetics.**

Before injecting cocain, Dr. L. W. Jordon paints the gum with campho-phenique, full strength, to prevent forcing septic matter into the tissues with the needle. The campho-phenique by benumbing the gums aids in the anesthesia. The writer uses alcohol, either alone or combined with menthol, or equal parts by weight of chloretone and sulfuric ether for the same purpose, and with satisfactory results.

Dr. S. T. Adamson gives the following formula for a local anesthetic:

|   |                             |          |
|---|-----------------------------|----------|
| R | Acoin .....                 | gr. viii |
|   | Sodium chlorid .....        | gr. xii  |
|   | Morphin sulfate .....       | gr. ss   |
|   | Phenol .....                | gr. iii  |
|   | Glycerin .....              | m. iii   |
|   | Aqua Menth. Pip., q. s..... | oz. i    |

M.

For full information concerning its use and character of preparation see reprint in *Digest*, October, 1906, pp. 1128.



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During the past year I have obtained the most satisfactory results by using the following formula:

℞ Cocain hydrochlorid .....gr. iv.  
 Morphin sulfate .....gr. i  
 Phenol .....gtt. ii  
 Aqua Menth. Pip. q. s.....oz. i  
 M.

I believe the formula originated with Dr. Cook, in the main, with the exception of the proportion of cocain used, which I reduced from six grains to four, and the addition of the morphin, which counteracts the systemic effect of cocain. I have never had any pain or sloughing following its injection, and in the majority of cases have been enabled to reduce the pain of extraction to the minimum.

The following comparatively new agents, that have become official and which possess distinct anesthetic properties, are mentioned in the works of authorities on materia medica and therapeutics, and are worthy of close investigation:

**Cropa-cocain.** An alkaloid isolated from the narrow-leaved coca plant of Java by Geisel. Its action is similar to that of cocain, being one-half as toxic as this drug, and does not cause ischaemia or congestion of the mucous membrane with which it is brought in contact. According to Neugebauer, 0.05 to 0.26 gram of this alkaloid may be injected for the production of spinal anesthesia. (*Wood's Therapeutics*, pp. 118.)

**Anesthesin.** The ethyl-ester of P-amido-benzoic acid, whose hydrochlorid makes a one per cent. solution, is a very active and practically non-poisonous local anesthetic. It is very irritating, however, and when introduced hypodermically should be diluted to avoid the burning sensation which it would otherwise produce.

For *surgical anesthesia* Dunbar recommends the following formula:

℞ Anesthesin hydrochlorid .....0.25  
 Sodium chlorid .....0.15  
 Morphin hydrochlorid .....0.005 to 0.015  
 Water .....100

The solution can be sterilized. Internally, anesthesin may be employed in doses of from 5 to 7 grains in gastrodynia and in vomiting. (*Wood's Therapeutics*, pp. 118.)



**Subcutin.** A compound of anesthesin and paraphenol-sulfuric acid. It is said to be germicidal and non-toxic, and in a one per cent. solution especially useful for the production of infiltration anesthesia. One per cent. of sodium chlorid should be added to the solution in order to make it permanent in the cellular tissue. (*Wood's Therapeutics*, pp. 119.)

**Nirvanin.** Another substance introduced into practical medicine is readily soluble in water, and is a pronounced local anesthetic, but according to reports is not equal in activity to cocain. It is much less poisonous than cocain, and a two per cent. solution is very effective and may be freely used for infiltration anesthesia. The maximum quantity that may be used is given as eight grains. (*Wood's Therapeutics*, pp. 119.)

**Novocain.** Is a new local anesthetic brought to the attention of the profession by its discoverers, Unfelder and Einborn. My advice is that you let the other fellow prove that it has a place in dental practice. It has been shown that intravenous injections of solutions of this preparation decrease arterial pressure, and it is claimed by some that this action is due to its influence on the vasomotor centers, while it is the opinion of Pinet and Jeay that "nothing has been done to disprove that the decrease in blood pressure is due to the effect of the agent on the endocardium as was shown by Vulpian to be the case with cocain." This preparation is not official in the United States at this time.

Just here allow me to direct your attention to a reprint in the *Cosmos*, August, 1906, pp. 882, entitled "Disorders and Diseases of the Heart in Relation to Anesthesia for Dental Operations," written by H. Bellamy Gardner, of London.

### General Anesthetics.

**Narcotic.** Dr. W. H. Reubin says, "The beauty about narcotic anesthesia is its pleasantness. Patients are insensible to pain long before they are past talking. I can go ahead and operate, the patient being almost entirely conscious, but feeling slight or no pain. I have given narcotic and removed temporary abscessed teeth for almost babies, who would find no objection save that 'that stuff made their ears roar.' The patient always recovers completely in about five minutes, and there are no after effects."

I find no reference to this preparation in the works of the latest authorities that I have examined.



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### **Magnesium Sulfate.**

Dr. J. S. Meltzer, of New York, has discovered that complete anesthesia may be induced by injections of sixteen minims of a twenty-five per cent. solution of chemically pure magnesium sulfate for each twenty pounds of body weight of the patient. Before its injection an equal amount of cerebro-spinal fluid is removed by lumbar puncture. The anesthetic effect is quite prolonged, sensation and motion not returning for from eight to fourteen hours after administering the drug. No deleterious effects on the heart have so far been noticed, even in a case of an overdose, the pulse rate varying from seventy to eighty during the entire time, while the respiration fell to ten per minute.

As a local anesthetic it does not seem to possess any appreciable advantage, unless applied directly to a nerve trunk, when, according to a quotation from Dr. Meltzer by the editor of the *Brief*, it abolishes conductivity, "in this respect acting like the local application of cocain."

### **Ethyl Chlorid.**

Dr. Henry states that ethyl chlorid gives perfect anesthesia in man and in animals; that "its action is rapid, the excitement slight: there is no reaction, and the return to consciousness instantaneous." Care is necessary to continue the anesthetic until the operation is over, and as very little air should be inspired a good apparatus is needed. It is to be preferred in minor operations, since it is not followed by nausea or vomiting. It does not irritate the larynx, but may produce renal, hepatic and cardiac lesions. It may be given first, followed by ether or chloroform, with good results. (*Dental Digest*, pp. 108, January, 1906.)

Wood does not agree altogether with the statements credited to Dr. Girard. He considers this drug unfit for use as a general anesthetic. (*Wood's Therapeutics*, pp. 100.) Cases have been reported of unhappy results from inhalation of ethyl chlorid while being used for spraying the gums in process of "freezing" them prior to operating.

### **Somnoform.**

Regarding this preparation, permit me to quote what Wood says regarding same: "Somnoform is a proprietary anesthetic, said to contain ethyl chlorid 65 per cent., methyl chlorid 30 per cent., ethyl bromide 5 per cent. Such a mixture must always be to the practitioner a mystery, and can not be recommended." (*Wood's Therapeutics*, pp. 103.)

If you will carefully study the physiological action of the drugs which somnoform is said to contain, I believe you will have reason to doubt the safety of the mixture as an anesthetic.

Speaking on this subject, Dr. Chas. Teter, in November, 1906, *Dental Summary*, page 811, says: "Anyone using an unknown or new agent for this purpose does so on his own responsibility."



What I have said concerning general anesthetics applies with equal force to local anesthetics, and the use of preparations for hypodermic injections placed on the market under trade names, and without the exact formulæ, with quantities of the drugs contained therein printed on the label, can not be too strongly condemned. In fact, I believe a man who uses a secret nostrum for the purpose of inducing local anesthesia, the formula of which is only known to its dispensers, ought to be liable to prosecution for malpractice, by reason of the fact that he may or may not be introducing into the systems of his patients dangerous drugs contained in a solution, the character of which he knows absolutely nothing further than the statements of those who market it. The fact that it is highly recommended should not be sufficient reason for some one else to exhibit it in his practice, so long as its exact formula remains a secret.

I have had samples sent me that actually turned green in color within two or three weeks' time. Some years ago I used these secret preparations, but I never expect to do so again. I am sure that we all agree with Dr. Buckley when he says that should an accident occur, and one may occur at any time, it would be much better to have the prescription for the preparation you are using on file with your druggist than to be compelled to admit that you were using Dr. Smith's Wonderful Pain Killer, the ingredients of which are unknown to you. Aside from its safety, why pay from seventy-five cents to one dollar per ounce for a preparation that you can get from your druggist for from ten to twenty-five cents per ounce? My druggist only charges me ten cents per ounce for the local anesthetic, the formula of which is given above, and you can, therefore, afford to throw away such portion of it as may become old, and replace it regularly with a freshly prepared article.

### **Antiseptics, Deodorants, Disinfectants and Germicides.**

**Cr. Lavender Compound, U.S.P.** One pound of this preparation diluted in one gallon of water is, according to Dr. H. E. Davis, a valuable disinfectant for use in cuspidores. He states that a few drops of the diluted solution placed in your cuspidores will have a very pleasant effect on your patients. Its cost is sixty cents per pound.

**Cerebne.** Some one recommends this antiseptic for use in a cavity in front of bur in opening up putrescent canals, and states that the usual disagreeable odor is changed to one as pleasant as attar of roses.



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### **Oil of Turpentine.**

Perhaps the same results may be obtained by carrying out the suggestion of Dr. J. E. McDonald, in *Dominion Dental Journal*. He says: "On opening up a pulp chamber in which there is a putrescent pulp giving out a most offensive odor, dip your broach in oil of turpentine and insert in canal; the odor will change almost instantly, most agreeably to yourself and patient."

### **Sulfurous Acid.**

Sulfurous acid is said by Dr. J. Kennerly to be an absolute deodorant and disinfectant for a denture, and does not merely refer to plates that have been worn, but a few drops placed in the water in which your case is to be left over night, will make the cleansing with brush, soap and water pleasanter.

### **Conquin.**

A tonquin bean placed in a small bottle of iodoform is said to obviate the unpleasantness of this drug very much.

### **Iodin.**

Regarding this drug as a germicide, the *St. Louis Medical Review* says that "in a solution of iodine varying from 0.2 to 1 per cent. we have a very potent germicidal agent, far superior to mercury bichlorid—the acknowledged leader of all other antiseptics. It approaches nearly to the ideal antiseptic, in that (a) it is easily prepared and is stable; (b) is non-toxic and non-irritating, in the strength effective, being only one-fourth as toxic as mercury bichlorid; (c) it does not coagulate albumen, nor form inert compounds with tissues; (d) it is effective in a very brief time; (e) the stain it produces soon disappears; (f) last and most important, it possesses a remarkable penetrating power. A 0.5 per cent. solution is amply strong for all practical purposes.

### **Iodoform Solution.**

The *Lancet* mentions a formula published by M. Blanche "for the preparation of iodoform in a liquid state, which from a therapeutical point of view offers some certain advantages over an emulsion of iodoform. It is a syrupy, yellowish liquid, having an odor of iodoform, and is miscible with water, alcohol, ether, glycerin, chloroform, essential oils, benzol, eucalyptol and creasote. It dissolves guaiacol and several other drugs, and is easily absorbed through the skin, iodine having been found in the urine six hours after the application of the liquid. It is easily prepared by dissolving 35 parts of caustic potash in 25 parts of water, adding first 50 parts of oleic acid and 30 parts of 95 per cent. alcohol, and then 30 parts of iodine in small portions. On warming the mixture iodine is absorbed, and a brownish liquid is obtained. If neces-



sary the brown tint may be removed by the addition of a few drops of caustic potash. After a few days the liquid is decanted and kept in a dark place."

### **Antiseptic and Detergent Solution.**

Dr. Myers, in *Cosmos*, gives the following formula for an antiseptic and detergent solution, useful in treatment of pyorrhea pockets by atomizer, and, I might add, it would be an excellent preparation to use in spraying the patient's mouth prior to examinations or operations:

**R**    Campho-phenique .....dr. i  
       Dioxogen .....oz. i  
       Glyco-thymolin .....oz. iii  
       Aqua q. s. ad. ....oz. vi

**M.**

**Sodium Aurate.**                      Sodium aurate is mentioned by J. H. Verhoeff in *Journal American Medical Association* as being a non-irritating local antiseptic of remarkable power, and having effective germicidal power and non-toxic.

He prepares it by taking 1 gram of gold chlorid and cautiously adding sufficient of a 5 per cent. aqueous solution of sodium hydrate to produce a faint alkaline reaction. When the solution becomes lighter in color and more turbid, add 100 c. c. of a 1 per cent. solution of boric acid and shake the mixture. The turbidity disappears and the fluid becomes darker. Normal salt solution is added to make to the total 200 c. c. Filter this and keep in a glass stoppered bottle. By evaporating this to dryness, the antiseptic powder may be formed, and from this one may also make an ointment. Its bactericidal properties are dependent on the gold present. It must be completely neutralized to render it useful as an antiseptic. It is of great value in gonorrheal ophthalmia. The bacteria killed are found colored with metallic gold.

**Chloral Hydrate.**                      Chloral hydrate is distinctly germicidal and antiseptic, animal tissues being preserved by it almost indefinitely without interfering with their microscopical structure, a solution of from 20 to 40 grains to the ounce being employed. It is first irritant and afterward sedative.

**Chloretone.**                              Chloretone is locally a sensory nerve paralyzant, and in 10 per cent. solutions distinctly antiseptic.

**Ichthargan.**                             Ichthargan, a compound of silver and ichthyol, aside from its powerful germicidal and antiphlogistic properties, has distinct local anesthetic properties.



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### **Thymol.**

Thymol in  $\frac{1}{4}$  per cent. solution in alcohol is equivalent in germicidal properties to a  $1\frac{1}{4}$  per cent. solution of phenol against the coccus of mouth septicemia.

### **Hemorrhage After Tooth Extraction.**

#### **Carbolized Resin and Alum.**

Carbolized resin and alum has been recommended by Dr. J. W. Taylor, with the claim that it never fails to produce satisfactory results.

#### **Gutta Percha.**

Some suggest softening gutta percha and pressing it into alveolar socket, using a considerable excess. Have the patient bite into it to occlusion, pressing excess against the lingual and buccal walls. Cool, take out, trim and replace as a plug.

#### **Alcohol and Chloroform.**

Dr. Goslee believes that no effort should be made to control hemorrhage from root canals by any of the hemostatic agencies, but that blood should be dissolved out with alcohol or chloroform, and evacuated by means of tepid water or shreds of cotton, thereby conserving the color of the tooth.

#### **Potassium Permanganate.**

Schodel claims valuable hemostatic properties for permanganate of potash, employed in the form of a paste, made by mixing it with 4 per cent. of vaselin. The parts to which it is to be applied should first be thoroughly dried. It is especially valuable in epistaxis and hemorrhage from excision of warts and condylomata. Only slight pain accompanies its application. The preparation, when not in use, should be kept in an air-tight dish, as it deteriorates by exposure to the air to some extent. (Reprint in *British Dental Journal*.)

#### **Calcium Chlorid.**

In treating local hemorrhages, Grant points out that we should avoid producing additional injuries to the tissues, either by pressure pads or strong astringents, and states that while calcium chlorid is invaluable in hemophilia "it is advisable to intermit the use of this drug, as its constant use is not followed by a constant increase of coagulation."

#### **Perhydrol.**

Dr. Boyer asserts that perhydrol is a very reliable hemostatic in hemorrhages from the gums, and after nerve extraction. "One part of the perhydrol to three of water will check even severe bleeding, and the action will persist if the area is touched up repeatedly."



**Catarnine  
Hydrochlorid.—  
Stypticin.**

This preparation is valuable both as an internal and local hemostatic. Catarnine gauze or absorbent cotton saturated with catarnine has been greatly praised by dentists and general surgeons.

The following hemostatic mixture is recommended by the *Pharmaceutical Zeitung* (from reprint in *Cosmos*):

|    |                   |   |                        |
|----|-------------------|---|------------------------|
| B. | Sulfo-phenic acid | } | .....aa oz. iss        |
|    | Rectified alcohol |   |                        |
|    | Benzoic acid      |   | .....dr. i             |
|    | Tannic acid       |   | .....dr. i             |
|    | Glycerin          |   | .....oz. iss           |
|    | Rose-water        |   | .....q. s. ad. oz. vii |

M.

The sulfo-phenic acid is prepared by mixing one part of sulfuric acid with one-half part of phenol for several minutes in a *bain-marie* or water bath. The benzoic acid is dissolved in a portion of the alcohol, and the glycerin and the tannic acid in the remainder of the alcohol. The mixture is clear, of a straw color, acid in taste, caustic but not irritating, and coagulates albumen.

### Neuralgia.

According to the *Journal of the American Medical Association* Oswalt injects 1 to 1.5 c. c. of 80 per cent. alcohol, to which .01 gram of cocaine or stovain has been added, making the injection along the trunk of each of the branches affected with neuralgia, at the points where they emerge from the bone. He states that he has never had the slightest mishap or unpleasant by-effect. The pain is usually arrested at once, and in at least 90 per cent. of the cases treated the neuralgia was cured by this procedure.

**Warburg's  
Tincture.**

Dr. J. E. Powers recommends this preparation in two dram doses as being superior to quinine in cases of neuralgia from malarial origin. Personally I prefer Vinotone, a preparation identical with Warburg's tincture, except that it has the addition of aromatics, which makes it pleasanter to the taste. The dose is one tablespoonful four times daily.

**Chymacetin.**

Is a valuable analgesic in neurotic pains, and may be administered in from 5 to 15 grain doses in capsules.



## ITEMS OF INTEREST

### **Menthol.**

Rubbed on a part sometimes relieves superficial neuralgic pains.

### **Odontalgia.**

For this trouble the following prescription has been recommended:

R Chloral hydrate .....gr. lxxv  
 Cocain hydrochlorid .....gr. xv  
 Camphor .....gr. lxxv  
 Alcohol .....m. x  
 M. Sig. Apply to the cavity on a tampon of cotton.

### **Acetanilid.**

Dr. J. A. Burnett, in *Medical Brief*, says: "A small quantity of acetanilid placed in the cavity of an aching tooth will quickly relieve it. Guaiacol is superior to acetanilid, and should always be used in preference to it when on hand. Coffee is a good antidote for acetanilid. This should be mentioned to patients when prescribing it, as it may prevent much harm and save life.

### **Calcium Phosphate.**

The *Medical Progress* recommends that odontalgia due to pregnancy or debility be treated with maximum doses of calcium hypophosphate.

### **Pulp Capping.**

### **Beta-Naphthol.**

Dr. A. W. McCall, in *Federal Dental Journal*, says: "I have from time to time noticed, in the cleaning out of a cavity preparatory to filling, that we come across, over the pulp-chamber, a layer of softened dentin, which if removed would necessitate the treatment, and probably the removal, of the pulp. I find that by using in equal quantities hydronaphthol and cement (in the ordinary way of mixing cement for a filling), and placing a capping of the same over the layer of dentin, then allowing it to become set, and proceeding with my filling in the usual manner, my patient has no further trouble. The hydronaphthol preserves the teeth by arresting the action of putrefactive germs. The same applies in the case of a deciduous tooth, very little or no cleaning of the cavity being necessary: simply cap the cavity with hydronaphthol and cement and place your filling on the capping to obtain the necessary firmness. This applies also in the case of a hurried filling where the patient can not spare time for proper treatment. Again, when I find it necessary to extract the pulp,



and the patient has probably to leave the same day, after dressing and cleaning out the canal as well as possible in my limited time, I have filled the canal with a mixture of hydronaphthol and cement, and have proceeded with the filling. In no instance has there been any further trouble."

Beta-naphthol is the proper name for the remedy which Dr. McCall terms hydronaphthol. I have lately tried his method in several cases of nearly exposed pulps, and up to this time the results have been satisfactory.

### **Pain Following Pulp Capping.**

**Aconite and  
Chloroform.**

Dr. Louis Jack advises that in cases of pain following pulp capping, which is sometimes reflected to the ear, with a decided reaction to cold applications, after drying the gum tissues and wiping away adhering mucus, we may apply on a pledget of cotton, for from fifteen to twenty seconds, a lotion made of two parts of aconite and one part of chloroform. "The action of the chloroform is to accelerate the absorption of the aconite, which depresses the sensory nerves and equalizes the blood pressure at the apical region. The chloroform also acts as a counter-irritant."

Another writer recommends equal parts of aconite, iodin and chloroform for pericementitis. In my hands this latter preparation has not proved as satisfactory as equal parts of aconite and iodin.

### **Pain Following Extraction.**

**Phenol.**

"Thoroughly curette the alveolus, thus removing all disorganized tissue, coagulated blood and alveolar debris, if any is present. The alveolus is then copiously irrigated with hot water, and after drying with cotton, an application is made of two drops of phenol, and the alveolus is loosely packed with sterilized gauze. If the pain does not subside, an application should be made of campho-phenique and morphin acetate."—*Digest*, January, 1906, pp. 108.

### **Pulp Devitalization and Extirpation.**

**Lampblack.**

Garrett Newkirk advocates following Dr. G. V. Black's suggestion to mix your arsenical preparations with a little lamp black in order to detect any movement it may make tending to crawl out of cavity. He uses a preparation of arsenic, morphin and cocain, mixed with a sufficient quantity of lamp black to make a dull black color.



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**Adrenalin.** The *Dentist's Magazine* calls attention to a suggestion that has been made, to incorporate in nerve devitalizing pastes adrenalin, in order to control the tendency to swelling of the pulp, which causes the pain usually experienced from arsenical applications. I have been very much gratified at results obtained by carrying out this suggestion in a few cases.

**Trichloroacetic Acid.** Dr. A. Eubank, in *Dental Headlight*, says: "Dissolve cocain crystals with adrenalin and there will be no hemorrhage. Wrap a few fibers of cotton on a broach and dip in trichloroacetic acid and insert to the bottom of canal, cauterizing the ends of nerve fibers. The canal is then ready for immediate filling."

In my own practice, I have noticed in pressure anesthesia where I used cocain and adrenalin, that after extirpating the pulp, and reaction takes place from the styptic effects of the adrenalin, I always have profuse hemorrhage, but I have never cauterized the ends of nerve fibers, preferring to get rid of the possible coagulated blood by mechanical means, such as has already been suggested in this report. Dr. Eubank does not tell us what per cent. solution of trichloroacetic acid he uses, but I presume he means a saturated solution.

### **Pyorrhea Alveolaris (So-called).**

**Sodium Chlorid.** Dr. E. H. Allen recommends the use of sodium chlorid worked down into the pockets several times a day, and on the tooth brush. He claims that the gums will become solid and healthy and the recession stopped. Others have reported excellent results from its use. My own patients often enter a protest against its disagreeableness, but I believe it is efficacious when the treatment is properly and faithfully carried out by the patient.

**Nitrate of Silver.** In cases of extreme sensitiveness at the necks of teeth following removal of calcarious deposits, the application of a saturated solution of silver nitrate will afford relief. The soft tissues should be protected by napkin or cotton rolls. Should any of the solution accidentally come in contact with the soft tissues, its action may be promptly arrested by the application of sodium chlorid.

**Iodin to Soften Calculus.** A few applications of iodine to salivary and serumal calculus, according to Dr. E. M. S. Fernandez, tends to disintegrate and facilitate its removal.



**Sulfur  
Fumigation.**

Dr. B. J. Cigrand, in *American Dental Journal*, recommends in cases of loosened teeth, after having secured immobility through properly constructed prosthetic appliances, "to fumigate the gingivæ with sulfur as antiseptic treatment, and give the gums a bath with extract of geranium, which constricts the muscular tissue surrounding the teeth, inducing the gums to tightly hug the cervical portions of the dental organs."

**Argyrol.**

Dr. A. F. James, in *Dental Review*, advocates argyrol as the only drug he finds necessary to use in the treatment of pyorrhea aside from a good mouth wash. "After removal of deposits, syringe the pockets with warm water, and inject freely a twenty per cent. solution of this salt."

This is one of the silver preparations, and is now used extensively as a non-irritating disinfectant and germicide, and prevents soreness following the surgical treatment. It is also said to be a specific for the treatment of gonorrheal ophthalmia.

**Lactic Acid.**

Dr. J. H. Nicholson injects the pockets with a few drops of pure lactic acid, two or three times a week, until results are obtained, following thorough cleansing and polishing of the teeth. He says that while this treatment is slow in its effects, it is always sure.

Dr. Robert Good floods the pocket with warm C. P. lactic acid after all deposits are removed. He advises then to leave the tooth alone, giving it absolute rest, and claims that in two or three weeks your case will be well.

**Phenol-Sulfonic  
Acid.**

"In all cases of deep pockets," says Dr. Elgin MaWhinney, "I simplify the work of previously packing the pocket with gauze saturated in twenty-five per cent. phenol-sulfonic acid—or aromatic sulfuric acid will often do quite well. The packing should be left for twenty-four hours, when the gum will be crowded away from the tooth neck where the pocket is, so as to enable one to see to a great extent exactly what is being done, and to scale the root without much pain or laceration of tissue.

Dr. Eugene S. Talbot has written several interesting articles on the "Therapeusis and Treatment of Interstitial Gingivitis Due to Autointoxication," which appeared in issues of the *Dental Digest* during 1907. Dr. Talbot is a close student and deep thinker, and his observations should demand the attention of the profession generally. While I do not agree with him as to some of the treatment employed, yet in the main I believe he is correct in his conclusions.



## ITEMS OF INTEREST

### Prophylaxis and Hygiene.

#### Daily Massage of the Gums.

Dr. R. B. Huller says: "One of the wholesome things that may be done mostly, if not entirely, by the patient daily, or should be, is the massage of the gums. This may be done with the fingers pressing hard above the teeth and squeezing and working down to the edge of the gums. A little time spent each day with gum massage will result in those tissues becoming harder and more capable of resisting the incipient deposits, in fact, dislodging some that have got a foothold."

#### Silver Nitrate.

For the past ten years Dr. H. F. Hamilton has "made it a rule to see that all of the teeth back of the cuspids were given a good treatment with a saturate solution of silver nitrate as soon as possible after eruption. Apply it with a small swab, letting it stay a minute, and pushing it with an explorer down into the sulci. The staining is only superficial and caries is generally prevented, and if it occurs is greatly retarded."

### Removing Stains From Teeth.

#### Iron.

The *Alkaloidal Clinic* states that lemon juice followed by  $H_2O_2$  will remove iron stains from teeth in most cases. In some cases where the enamel has become worn and the substratum has been stained, it is impossible to remove the discoloration, as the bone cells themselves contain a lime and iron salt which is irremovable.

#### Silver Nitrate.

Stains from this salt may be removed by applications of iodine followed by alcohol.

### Sensitive Dentin.

#### Ethyl Chlorid.

J. M. Gale asserts that "the first application of the bur can be made absolutely painless in the most highly sensitive cavity by simply taking ethyl chlorid on the bur point and bringing it quickly into contact with the tooth.

Dr. Geo. Gow states that very gratifying results may be obtained from the use of ethyl chlorid spray if properly managed. While it is by no means painless in its application, "it is appreciably less so if a blast



of cold air is first directed against the tooth, making the change of temperature less sudden." A pledget of cotton saturated with the liquid should then be brought in contact with the tooth cavity, and then removed, repeating it frequently, until it can be left in the tooth without excessive pain, when the tooth may be sprayed direct. The finer the spray the better.

**Perhydrol.** This preparation, which is Merck's formula of hydrogen dioxid, is recommended by Virgo Andresen, of Copenhagen, for use in dental hyperesthesia.

Dr. Guilford quotes him in the *Stomatologist* as saying that "a few drops of the 30 per cent. perhydrol acts almost instantaneously in anesthetizing the dentin. It is to be preferred to silver nitrate, since it bleaches instead of staining. In filing off long teeth much pain can be avoided, but for the pulp itself the drug is entirely too irritating. In cavities that can not be kept dry, it also serves to disinfect, while the cauterization is too short to be painful."

**Phenol.** Wm. Simms reports the satisfactory use of phenol, zinc chlorid and trichloracetic acid as dentin obtundents, by placing either of the remedies on a pledget of cotton in the dessicated and protected cavity, covering same with unvulcanized rubber and using pressure.

Personally I have never had much success with phenol except in combination with cocain, and even this combination is not always reliable for desensitizing dentin, but is usually efficacious in anesthetizing a partially exposed pulp for opening into its chamber and facilitating its removal.

**Trichloracetic Acid.** Dr. Geo. Gow also recommends warm saturated solutions of trichloracetic acid, for application to shallow erosion cavities, the cavity being dessicated between applications. He claims real merit for this procedure.

**Sodium Dioxid.** Through the alkaline and caustic properties of this drug it is said to obtund sensitive dentin. It should only be used for this purpose by making a saturated solution in water, as much heat is generated, accompanied sometimes by ignition, when the dry powder introduced into the cavity comes in contact with moisture in a tooth. (*Brief.*)

**Zinc Iodid and Iodin.** Dr. E. M. S. Fernandez, in *Review*, recommends the following preparation and method previous to excavating: Zinc iodid crystals, grs. 1½; iodid crystals, grs. 2. Make a solution of this in glycerin. Wind a small pellet of cotton on the end of a broach, dip in



## ITEMS OF INTEREST

the solution and apply it to the cavity of decay. For removing the stain use hydrogen peroxid.

### **Phenol and Sodium Dioxid.**

Dr. Henry I. Moore obtains happy results from the following method: Flood the cavity with pure phenol, and wait a minute or so; then put into the cavity a little finely powdered peroxid of sodium without wiping out the acid. This causes some pain. Add a few more grains and commence to excavate. If the rubber dam is not used care must be taken of the gum. In connection with Dr. Moore's suggestion, I would call your attention to the quotation I have just made from the *Brief* regarding sodium dioxid and the danger of ignition when coming in contact with the moisture of the mouth.

### **Potassium Carbounate.**

A saturated solution of this drug in glycerin, according to Dr. L. W. Jackson, is very effective for sensitive dentin. It is non-poisonous, and should be applied to the cavity on cotton and allowed to remain for ten or fifteen minutes.

### **Phenol and Oil of Cloves.**

Some one recommends sealing into the cavity for twenty-four hours equal parts of phenol and oil of cloves, to which has been added twenty grains of cocain to the ounce.

### **Jarring.**

Dr. Lenard advises jarring the tooth with an automatic mallet having a blunt plugger, and states that it aids materially in inducing the penetration of fluids into the dentin.

### **Pressure Anesthesia.**

Dr. Miller has given us the results of his experiments showing the penetrating action of different agencies in connection with pressure anesthesia, and his findings show that sufficient pressure may be brought to bear by the hand, and that the use of high pressure instruments is absolutely unwarranted.

It has not been my pleasure to carry out all of these different suggestions for obtunding hypersensitive dentin, and I believe all of you will agree with me when I say the satisfactory handling of cases of dentin hyperesthesia is one of the most perplexing problems that confronts the dental surgeon. I have, in the past, tried every remedy I ever heard of, or saw printed in our text books and journals, and in some cases you may try one after another until you have exhausted your medical armamentarium, and still the sensitiveness is either just as acute and many times more acute than it was when you started. I am not referring now to our later methods of pressure anesthesia.



I have, however, in several instances had satisfactory results from the use of equal parts by weight of chloretone and ether, and a solution of cocain in ether.

### Sensitive Palates.

**Chloretone.** Where patients have such hypersensitive palates as to render it impossible to take impressions for dentures, Dr. A. E. Franklin, in *Dental Register*, states that most obstinate cases may be controlled by the administration of chloretone in 5 grain doses as follows: One powder to be taken on rising in the morning, the second two hours from the first, and a third powder after eating a light breakfast. The patient is then to report at your office, and you again administer a 2 grain dose of chloretone, after which you may proceed to take the impression.

### Sore Gums and Mouth.

**Orthoform.** Dr. H. W. McMillan states that this drug applied to sore places on gums caused by a denture will remove the soreness.

**Zanker Sore Mouth.** Dr. J. E. Power considers aromatic sulfuric acid, full strength, almost a specific for this trouble, and he at the same time prescribes internally the following:

R Tr. ferric chlorid .....gtt. x  
 Potassium chlorate .....gr. iii  
 Aquae .....oz. ss  
 Every three hours in lemonade.

**Picric Acid.** Dr. Paran employs picric acid in inflammatory affections of the mouth, and has successfully exhibited it in the "treatment of traumatic glossitis, particularly those occurring through attacks of epilepsy: in exfoliate marginal glossitis, ulcerations of the gingival and buccal mucous membrane: in mercurial stomatitis, so-called, and, indeed, in all inflammations of the mucous membrane of the mouth, particularly those of microbic genesis." His formula for use is:



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- ℞ Saturated aqueous solution of picric acid.....1 part  
Distilled water .....2 parts

The solution to be applied upon the ulcerated area twice daily by means of a pledget of cotton. (Reprint in October, 1906, *Digest*, pp. 1126.)

### Mercurial Stomatitis.

For tender, bleeding gums from pyalism, or any other cause, associated with fetid breath, the *Medical News* gives the following prescription:

- ℞ Formaldehyd (40 per cent. solution).....dr. i  
Thymoli .....gr. x  
Tincturae benzoini compositae .....dr. ii  
Alcohol q. s. ad.....oz. iii

M. Sig. Teaspoonful in wineglass of water as a mouth wash every two or three hours.

A 40 per cent. solution of formaldehyd is known as formalin.

### Fetid Mouth.

- ℞ Saccharin } .....aa gr. xv  
Sodium bicarbonate }  
Salicylic acid .....gr. xxx  
Alcohol .....oz. iiiss

M. Sig. A few drops in a glass of water to be used as a gargle. (From *American Medicine*.)

As antiseptic and disinfectant mouth washes the following formulæ will prove valuable.

- ℞ Resorcin .....gr. xx  
Alcohol } .....aa dr. i  
Glycerin }  
Carmine granules .....No. vii  
Aquae q. s. ad.....oz. viii

M.



|    |   |          |
|----|---|----------|
| R  | Benzoic acid .....                              | gr. xii  |
|    | Salicylic acid .....                            | gr. x    |
|    | Thymol .....                                    | gr. ii   |
|    | Glycerin .... }                                 |          |
|    | Honey of rose }                                 | aa oz. i |
|    | Carmine granules .....                          | No. vii  |
|    | Aquae q. s. ad. ....                            | oz. viii |
| M. | Sig. Dilute with water and use as a mouth wash. |          |

### **The Saliva.**

The Committee on Scientific Research of the Dental Society of the State of New York made a most interesting report (see *Cosmos*, October, 1906, pp. 1029), covering their investigations on this subject. Dr. Samuel Daskow also contributed an able article in the *Digest* for January, 1906, pp. 41.

The study of the saliva is receiving more attention than it has perhaps been given at any time in the past, and if the investigations along the lines already begun continue, we may expect many mysteries cleared up that will no doubt enable us to treat systemically some of the effects of faulty metabolism that have heretofore been treated surgically, and then, too, with only a moderate degree of success.

The *Lancet* says: "Dr. C. Risa has been able to confirm the views of other investigators to the effect that there is a distinct relationship between dental caries and the alkalinity of the saliva, and that a high alkaline reaction constitutes the best means of combating the development and progress of caries. From experiments on the means of modifying the saliva, he finds that a diet consisting of food stuffs rich in calcium salts increases the alkalinity and quantity of the saliva, and he believes that such a diet influences in a marked way the quality of the teeth.

In my paper last year I said that I did not believe that dentists, as a rule, pay as much attention to the condition of the saliva of our patients as we should, and I am still of the opinion that until we do learn to analyze the saliva, and learn what to administer to produce certain changes in this fluid, we shall continue to see the ravages of decay in the mouths of our patients, and the beautiful fillings we insert return to us with recurrences of this trouble.

When your patients have an excessive flow of saliva administer a 1-150 gr. tablet of atropine sulfate three-quarters of an hour before operating. The patient's mouth will not become excessively dry, but the flow will be considerably checked, and the effect of the drug will continue four or five hours.

**Atropine  
Sulfate.**



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## Special Preparations.

### Mercuric Cannate.

Dr. W. J. Robinson says this drug is one of the least irritating compounds of mercury, and is especially valuable where the stomach can not endure any other form of mercury. One-sixth or one-half grain pills or granules may be given from three to six times daily.

### Beta-eucain Lactate.

This preparation is considerably more soluble in water than beta-eucain, and is said to possess all the properties of the hydrochlorid.

### Lead Wash, Mucilagenous.

E. S. McKee recommends a mucilagenous lead wash as a substitute for the official lead and opium wash that has been justly popular for a long time. He states that the efficiency of the preparation is due to the astringency of the lead, and that the local application of the opium alkaloids are superfluous since they are not absorbed by the skin. His formula is:

R    Liq. plumbi subacetatis .....gr. lxx  
      Mucil. accaciae .....gr. xiv  
      Aquae q. s. ad.....oz. iii  
M.

The manner of preparation is as follows: The solution of lead subacetate is diluted with 55 c. c. of water, and the mucilage with 27 c. c. The two are then mixed. Alcohol 15 c. c. may be added to the water, but the quantity of water present in the laudanum and lead water preparation is too small to be of any benefit.

### Dionin.

Dr. F. Walther, in the *Cosmos*, calls attention to dionin as a substitute for morphin. Both he and Wood (see *Wood's Therapeutics*), claim that it has the advantage of possessing no unpleasant after effects. Wood states that its effects are, in a certain measure, lost when administered in conjunction with cocain, and recommends that the cocain be instilled after the administration of dionin.

### Thymophen.

Dr. Edw. C. Kirk announces a new preparation which he terms thymophen. It is made by rubbing together in a mortar, or combined by gentle heat in a beaker or porcelain dish, equal parts by weight of crystalized phenol and thymol, the result being a fluid of oily consistency, similar in physical characteristics to campho-phenique. He claims for it high germicidal efficiency without escharotic properties, and that it does not



coagulate the cuticle when applied topically. Dr. Kirk is to be congratulated upon his combination of thymol with so excellent a menstruum, and deserves the commendation of the entire profession for giving it to us without any effort on his part to "patent" the formula or market it as a pharmaceutical preparation.

**Paraform.**

Paraform, or formaldehyd, as it is most frequently but erroneously called, continues to have its praises sung by all who have given it a trial. Formalin, which is the 40 per cent. solution of this drug, is entirely too strong for dental use. Dr. Burnett, in *Dental Record*, says that a 5 per cent. solution is as strong as it should be used, and that in most cases 3 per cent. and 2 per cent. solutions are of sufficient strength. He claims that "one or two drops of a 2 per cent. solution placed in the canal of a putrid tooth will, in two days, render it absolutely sterile and quite odorless."

Having given the method of using paraform, which was mentioned in my paper last year, a thorough trial, I am entirely satisfied with results obtained from its use.

**Silver Nitrate.**

Dr. J. N. Crouse, in *Dental Review*, avers that he believes it to be good practice, when you have evidence of a superficial decay to touch it with silver nitrate and see how deep it will go. "In a few weeks that will show you how far the area of decay has gone. Often you need not go any further, as that will stop the decay."

**Urotropin.**

Has been suggested as a valuable antiseptic. Its principal use, however, is as a uric acid solvent. It owes its antiseptic properties to the liberation of paraform and ammonia gases when exhibited in an acid media at the temperature of the human body.

**Renoform.**

Is mentioned in the *Dental Review* by Chas. P. Haselden, of Hamburg, Germany, who says: "The active principal of renoform is suprarenin, obtained from the suprarenal gland. A very small quantity injected locally contracts the blood vessels, and thus, by shutting off the blood supply to the nerves, they lose all power of transmitting sensation. The few minutes needed to induce anesthesia is not lost time, for one can operate much more quickly, as well as better, if the patient is not suffering, and therefore remains quiet. In general, I would say that renoform is indicated, first, for extraction of teeth; second, for destroying pulps; third, for painless preparation of all cavities in otherwise sensitive teeth; fourth, for cleansing the roots of diseased teeth where the gum tissue is inflamed and sensitive; fifth, for preparing live teeth for gold crowns or bridges; sixth, for permitting the painless application of the separator."



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Regarding reniform I wish to say that neither the latest editions of the United States Pharmacopoeia or Wood's Therapeutics make any mention of it whatever, and until it becomes an official preparation, I would advise that you not use it except in experimentation on the small animals along scientific lines. From what Dr. Haselden has said, I would judge that its action is almost identical with that of adrenalin, as it is also one of the suprarenal gland derivatives.

### **Adrenalin Chlorid.**

The experience of I. N. Taylor (*British Dental Journal*) would indicate that adrenalin chlorid is contraindicated in pathological conditions of the pulp tissues as a topical application to same. Its use should be confined to freshly exposed or healthy pulps, in which cases he reports decided success. Others have had similar experiences with adrenalin in connection with cocain, and I might add that my observations have been practically the same as those of Dr. Taylor.

Mr. Creig, in *London Dental Record*, states that it has been ascertained that cocain dissolved in alcohol or chloroform acts better than when dissolved in adrenalin.

Dr. W. Clyde Davis gives the following formula for adrenalin and cocain solutions:

R. Cocain hydrochlorid .....gr. 1-6  
 Adrenalin chlorid sol. ....ggt. i  
 Dist. extract witch hazel q. s. to fill syringe.  
 Sig. Inject as local anesthetic.

When the quantity of cocain is increased the adrenalin should be increased in proportion.

In connection with this suggestion, allow me to call your attention to the article in September, 1906, *Digest*, entitled, "A Plea for the More Conservative Use of Anesthetics, Narcotics and Sedatives in Dental Practice," by Dr. C. P. Pruyn.

This, gentlemen, is my report. I can not say that I am entirely satisfied with it myself, yet I trust it will answer the purposes for which it was intended.

In closing I would ask that you consider the suggestion of raising a committee on scientific research seriously. Such a committee could take the report I have just made, and at our next meeting could tell you whether or not the different remedies recommended for different pur-

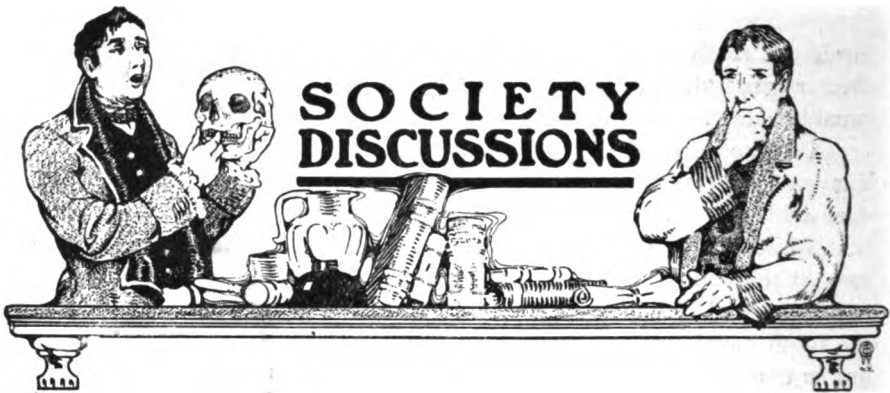


poses are really meritorious in this section of our country: aside from their regular duties in original research work, that would be of inestimable value to the profession and its clientele.

I desire to rescind the statement I made last year in my paper before this body appropos of pulp numification. From a more extended experience with this method and close observation, I am now prepared to say that while this sort of treatment will keep the tooth quiet for a year or two, at the end of that time, when the antiseptic properties of the drugs are exhausted, you may expect to have your patient return to you with the tooth canals putrescent and requiring further treatment. This may not be true in some sections of our country, but in malarial districts I not only find this to be the case, but I have considerable trouble in devitalizing pulps by arsenical applications.







### **New Jersey State Dental Society, Thirty-seventh Annual Meeting.**

The thirty-seventh annual meeting of the New Jersey State Dental Society was convened at the Auditorium, Asbury Park, N. J., Wednesday, July 17, 1907.

The meeting was called to order at 11.30 o'clock by the president, Dr. M. R. Brinkman, in the chair.

Dr. Woolsey, vice-president, then took the chair and Dr. Brinkman read the following address:

#### **President's Address.**

It gives me pleasure to welcome you at this our thirty-seventh annual meeting.

This year, like all previous ones, required hard, earnest work to bring about the result which I trust will meet the approval of all our members. Early in the year many matters of importance concerning the welfare of the Society presented, and it was deemed necessary to call a special meeting of the Executive Committee, at which time a plan of action was decided upon.

Many subjects were thoroughly discussed. It was deemed wise on account of the increased expense of conducting our meetings, that the price for space for our exhibitors be raised to meet the requirements.

The State Board reports sending out blanks for registration, showing the number of practicing dentists in the State. This compared with the numerical strength of the Society shows a low percentage of membership and is inconsistent with the prestige of this State Society with other States. The subject was thoroughly discussed by the Executive Committee at its January meeting, and after careful consideration it was decided to debar resident dentists of this State from meetings and



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clinics unless they make application for membership. This is only following the precedent of other States, who have of late years practiced this method and gained many accessions in their membership. .

Every facility before and during the meeting will be given the dentists of the State to become members, through any of the officers of the Society.

The Exhibit Committee, under the chairmanship of Dr Woolsey, deserve great credit for their efforts: the beautiful array of exhibits speak for themselves.

The Clinic Committee, under the leadership of Dr. Dilts, have been untiring in their efforts to obtain clinics which will interest and instruct our members, and the results of their work is very gratifying.

The Essay Committee, under the guidance of Dr. Jaquette, have arranged some of the most interesting papers, and deserve our thanks.

As can be seen by our programmes our secretary, Dr. Meeker, the man who never tires working for this Society, produced a work of art of which every member of this Society should be proud.

Your Legislative Committee, under the chairmanship of Dr. Duffield, have had some very interesting sessions, and copies of the result of their meetings, in the shape of new and proposed amendments to our present dental laws have been mailed to every member, and I trust has been carefully read, so that you may vote on the same knowingly.

While on this subject, I would suggest that the duties of the Legislative Committee be more specifically defined, so that in the future there will be no question as to the extent of their power.

I presume that you are all aware that a great national convention will be held at Jamestown in September, and I hope to see every member of this Society present, so that the name of the New Jersey State Dental Society will be ever foremost, and I also trust that our State will be well represented among the list of clinicians.

I regret to say that on account of the impaired health of our esteemed friend Dr. Steele, chairman of the Committee on the Examination of Children's Teeth in Public Schools, that work has not progressed very rapidly, and I would suggest that every member of that important committee consider himself a chairman and do something to further the cause and not leave the whole burden on the actual chairman.

I wish to take this opportunity to thank the members of this Society and the several committees for the earnest and hearty support given me during my term of office, and I trust the harmony and good fellowship which has elevated this Society to its high and exalted position will continue to prevail, and the reputation of the New Jersey State Dental Society remain at the pinnacle, where it justly belongs.



## ITEMS OF INTEREST

### Discussion.

**The Vice-President.** You have heard this admirable address of our president. It is now open for discussion. I hope you will all freely take part.

**Dr. E. S. Stockton.** The president refers to the membership. It is astonishing that there are so few members in attendance. We have a list of registered dentists of 1026, and instead of having two hundred members in this Society we ought to have at least five hundred; indeed, we ought to have a thousand, and I am not sure but that we ought to have 1026. Why do we not have more? That has been the problem for years, and we have seemed to be unable to solve it. You have attempted to solve it this year by excluding from the meeting all who are not members of this Society. To the Executive Committee perhaps that may seem a wise step; I am not prepared to say to-day that it is or is not. Last year only eight joined the Society. Unless a very much larger number than that join this year this effort will be a failure. I sometimes think I am liberal enough to let them come in and derive the benefits that accrue to them here, but the Executive Committee in its wisdom thinks otherwise. There is another element that will tend to successful membership, that is, the abandonment of the initiation fee of five dollars. Now five dollars initiation and three dollars dues, that makes eight dollars, and eight dollars looms up as big as eight silver dollars before the eyes of a good many young men, and they are consequently deterred from coming in. I would recommend that the Membership Committee offer an amendment dropping this initiation fee; I think it would be a wise thing to do.

**Dental Legislation.** Now this Legislative Committee that the president has referred to I think has far exceeded the object for which it was appointed. They have formulated an entirely new law. The old law has worked well; there is no question about that, and I do not see why it should be changed. Is there anybody here to-day who would care to have a certificate of membership, or who would rather have a license to practice dentistry in the State of New Jersey signed by our present Secretary of State? (Applause.) Not a single one of you would want to have a certificate to practice dentistry in this or in any other State signed by such a man. I say to you that the dentist should have his license signed by dentists, not by the chairman of the Board of Health or some other outside individual. Let us adhere to that which has carried us safely over the rough places for so many years, rather than to set aside the men who have done the work, men whose names should go on the certificates of those who pass their examination,



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rather than the president of some board or the secretary of a council that perhaps knows nothing about the character or qualifications of a dentist.

Only one thing more, and although it is not especially referred to in the president's address, I can scarcely let an occasion like this pass by, as I have taken such interest in it in the past, without referring to the matter of interchange of licenses between State Boards. I have become wise in finding that they have not taken to this idea as rapidly as I supposed they would. The idea is a good one and interchange should be in existence. Nobody controverts that, and yet it is not accomplished. Twice the National Board has taken up the matter and unanimously recommended it to the State Boards, but only a few of them, apparently, have adopted it. Strangely enough we have, right in our existing law, what is perhaps a better solution of the matter than the Asheville one, and I may present a resolution that our examiners who attend the National Board be instructed, if possible, to have this section of our law recommended to the various States as a part of a law of all the States, and that will settle the matter so far as law can settle it. The sixth section of our statute says: (Reading)

"Said Board shall register as licensed dentists, and under its seal and the hand of its president and secretary, issue to all persons who shall successfully pass said examination, its license to practice dentistry in this State."

This is the part: (Reading.)

"The Board may also, without the examination hereinbefore provided for, issue its license to any applicant therefor who shall furnish proof satisfactory to it, that he has been duly licensed after examination, to practice dentistry in any State, after full compliance with the requirement of its dental laws, and has been lawfully and reputably engaged in said practice for five years next preceding his application: *provided, however,* that his professional education shall not be less than that required in this State: every license so given shall state upon its face the ground upon which it is granted, and the applicant may be required to furnish his proof upon affidavit: the fee for such license shall be fifty dollars."

That covers the whole ground, that is, interchange of licenses. Any-one who has passed his examination in New York, Connecticut, Massachusetts, Indiana or Ohio, and comes to New Jersey may, under that section of our law, practice dentistry in New Jersey. It does not say that the Board *shall* issue him a license, but it says that the Board *may*. So that if such a man has not behaved himself in the meantime, they have it in



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their power to say, "We don't want you." As I say, that is interchange of license, and is perhaps a better provision of law than the one I thought so much of, and I should be glad to have that incorporated in the recommendation to the National Board as the law of all the States, so that the reputable dentists of any one State may practice their profession in any other State in the Union. (Applause.)

The trouble about the whole problem of interchange is that nobody is really interested in it except a few itinerants and a few men who have lost their health, and for that or for other good reasons desire to leave the State. It is a beautiful theory but difficult in practice.

In regard to what has been said as to restricting admission into this convention, I must say that I believe that the New Jersey State Dental Society, after opening its doors for thirty-six years and learning a lesson, is perfectly justifiable in closing its doors to those who are willing to take all they can get, but are not willing to pay. It may lessen your income for a little while, but if you have the courage to adhere to it for two or three years I believe you will have a larger membership, a larger attendance and a stonger and a better Society. I think it is time to teach these people that if they want the benefits of the experience and knowledge of the best men in the profession they should be willing to pay for it. At the same time I agree with Dr. Stockton that the little money which our Society takes in from initiation fees could be dropped with profit. In an organization of this kind it is a mistake, for you don't make new members of old men as a rule; what we are trying to do is to get the young men in, men who are just starting in as dentists. It seems to me that it would be much more feasible to make the first year's dues nominal instead of excessive. Two dollars for the first year and three dollars after would be better than eight dollars the first year and three dollars after. (Applause.)

Mr. President and gentlemen, I have been to many State Dental Society meetings throughout the country, and I want to say that nearly every president's annual address is academic in its nature. But we have with us a president who has worked, and you see the effect in his address, of a man working for the good of the Society. There is nothing academic about his address; he takes up the subjects that the Society most desires, and he treats them all just as he does every bit of work in his office.

Now Dr. Stockton has touched on the subject of whether it has been a mistake or not to bar out dentists who are not members of the Society. I have taken a great deal of interest in that matter for many years, and



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as I look around me here I see men who have worked in the Society for twenty-five or thirty years. What have those men been working for? To raise the standard of their own profession among themselves and in the minds of the public. But when men come here from all over the State and attend our meetings and our clinics, and put their hands over their pockets and then go away and make improper criticisms of what we are doing, we are right to protest. It cost the Society last year \$1100 for the meeting, and we are working all the time to make the Society a strength in our State, and incidentally we are doing many things that are helping these very men who decline to pay any money; we are helping the dental parlors to get more money, because we raise the standard of the profession. The newspapers of the State give us twice the space in their columns that they did a few years ago. Why? Because of what the State Society has been doing year in and year out. I hope this principle of barring out New Jersey dentists unless they become members will continue, and I think we have made no mistake whatever in that matter.

Mr. Chairman, I am very much pleased with  
**Dr. H. S. Sutphen.** the president's report. In it he embodies a great many things which are worthy of our most serious consideration.

In regard to the amount of initiation and dues for membership in the Society, it seems to me that we could, with profit to ourselves and advantage to our confreres, lessen the fee for initiation. But this meeting is very expensive. As has been said, it costs us anywhere from nine hundred to twelve hundred dollars. The treasurer tells me that this meeting will cost about \$1500. I think we could reduce the initiation fee to two dollars, and still maintain the annual dues at three dollars. I would favor some such arrangement.

As far as the new rule excluding all dentists not members of the Society, I think we have made a move in the right direction. It does not seem right that a few members of the profession in the State should devote their time, labor and money to support the Society and to have such meetings as we give here year after year, and then allow everybody else to come in and reap the benefit without cost to themselves. This is not an experiment in the dental profession; the States of Massachusetts, Connecticut, Alabama, Illinois, California and several others have tried it and have found it to be a success, not only in getting new members into the Society, but because of the fact that it interests a larger number of dentists in the work of the Society, weeding out to a large extent the advertising and unethical dentists, and I await with a great deal of anxiety and with a great deal of interest the outcome in our own Society.



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Mr. Chairman, I am glad to have been here and  
**Dr. David G. Baker.** to have heard our president's address. I think he has made some very fine recommendations in it, particularly the one in reference to the Legislative Committee. It strikes me, according to the by-laws of the Society, that our Legislative Committee has no power whatever, and it seems to me that at this meeting something should be done defining the powers of the Legislative Committee. It should be stated just how far they can go, whether or not they have power to formulate a law and present it to any legislative body without a vote of the Society. I think it would be well if an amendment were made to our by-laws distinctly stating what the Legislative Committee shall do and what its duties shall be.

In reference to our membership, I do not know that I am entirely in favor of cutting off the initiation fee. I am somewhat of the opinion that a thing that costs nothing is worth nothing, and although an expenditure of eight dollars may be a hardship on the young men just starting out in business, I think we should have some initiation fee, say making the sum total of expenditure to a man joining the Society five dollars, and then make the dues two dollars. This scheme of keeping out men who are not members I think promises to work well, because I have heard of three men making application to join the Society knowing they could not get in without. I am told that some societies exact a fee from outsiders who wish to visit its conventions, a fee equal to one year's dues, and it strikes me that even if they do not join we could charge one dollar or two dollars to a dentist who wants to visit the clinics. There is no reason why we should spend our money for the benefit of the many outsiders who want to see all and pay nothing.

I am very glad to be here to-day. Having been  
**Dr. R. W. Jewett.** a wanderer for six years it seems like coming home to be again in a meeting of the State Dental Society. I agree with what Dr. Ottolengui said about interchange not being practicable. In the Western States I think it would be voted down. There is a great deal of jealousy between the Western and Eastern States on the subject of interchange of license. You have no conception of the political interference there is until you have been out in the Western States: then you will see the force of Dr. Ottolengui's remarks as to interchange not being practicable in all States. In the Western States the members of the various boards are practically mere figureheads controlled by politicians.

I did not hear the president's address as I did  
**Dr. Wright,** not get in in time, but from the remarks I have heard  
**Croy, N. Y.** during the progress of this discussion I feel almost as though I was intruding, as I am not a member of



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the Society, not being a resident of the State. But I want to say that certainly for thirty years I have not missed a meeting of my own State society, and I feel perfectly at home among dentists. I wish particularly to refer to the remarks of Dr. Stockton in regard to the interchange of licenses. New York State has interchanged about eighty licenses with Pennsylvania and New Jersey during the past year, and I think that the Board in that State takes the ground that they are willing to interchange with any State which will come up to the requirements of New York State. That has been the trouble, especially with some of the States, that they would like to interchange, but do not require for a license the same qualifications as are required in our own State, and until the States can adopt very closely the same examination I can not conceive how we can expect the granting of licenses promiscuously through the States. Even to-day the New York State dentists will tell you that they would rather take their examination in Pennsylvania than in New York State; and when you come to some of the middle western States you find it still easier to obtain a license, and for that reason it is very difficult to interchange.

May I ask the secretary to explain to the Society the action of the Executive Committee regarding the exclusion of dentists? I think Dr. Wright has misunderstood it. It is my understanding that the New Jersey State Dental Society does not wish to exclude any other than New Jersey dentists? We very gladly welcome dentists from other States; they are not expected to join the Society.

Dr. Jaquette is entirely right; all dentists practicing in other States are perfectly welcome, but all New Jersey dentists not members of the society are barred unless they make application for membership. Dr. Wright is perfectly welcome here.

(At this point on motion, duly seconded, the discussion was closed and the president resumed the chair.)

I wish to thank you gentlemen for receiving this address in the spirit you have. It goes to show that one of the best features of our meetings is these discussions. The next order of business will be the reading of communications.

The secretary read a letter from Dr. Edwin Chew, age 74, of Salem, resigning as a member of the Society, and on motion, duly seconded, the resignation was accepted.

The resignation of Dr. Chew having been accepted, on motion of Dr. Stockton, duly seconded, Dr. Chew was made an honorary member of the Society.



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The secretary next read the resignation of Dr. E. T. Wheaton, which, on motion duly seconded, was accepted.

The secretary next read the resignation of Dr. Eugene H. Taft, which, on motion duly seconded, was accepted.

The secretary next read a communication from Mr. George Emory Adams, requesting that certain books, the property of Dr. Fred. Levy, deceased, be ~~taken~~ care of by the Society, which communication, on motion duly seconded, was referred to the Executive Committee.

The secretary next read a communication from the Connecticut State Medical Society, which communication, on motion duly seconded, was referred to the Executive Committee, to be brought up on a later occasion.

The secretary next read a communication from Dr. W. A. White, former president of the New York State Dental Society, which communication, for the appointment of a Committee on Oral Hygiene to work in union with the National Association, on motion duly seconded, was referred to the Executive Committee.

**The President.** Has the chairman of the Membership Committee anything to report? If so, it will now be in order.

**Dr. W. F. Haylor.** Mr. President, I have between twenty-five and thirty applications, but some of those are not ready for presentation this morning, having been handed to me to make out notices only this morning.

**The Secretary.** I move that those applications that are not ready to be presented at this time be referred to a committee, to be reported on at a later date as regards their fitness.

The secretary's motion was duly seconded and it was so ordered.

On motion, duly seconded, that the secretary cast the ballot, there being no objector, the following were elected members of the Society: Dr. J. S. Miller, Trenton, N. J.; Dr. Charles F. Harper, Jersey City, N. J.; Dr. Raymond Adair Albray, Newark, N. J.; Dr. N. W. Leard, Jersey City, N. J.; Dr. George H. Griffith, Trenton, N. J.; Dr. Isaac P. Lowe, Sussex, N. J.; Dr. Vedder Marcellus, Manasquan, N. J.; Dr. G. B. Amack, Keepport, N. J.; Dr. Arthur S. De Voe, Newark, N. J.; Dr. Thomas H. Pratt, Asbury Park, N. J.; Dr. Albert H. Wallace, Upper Montclair, N. J.; Dr. R. K. Morgan, Woodbury, N. J.

**The President.** I desire to announce that Dr. Frederick C. Kemple, of New York City, will read a paper at this evening's session on the subject "Orthodontia in Relation to the Development of the Bones of the Face," and that Dr. Tag-



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gart, of Chicago, at to-morrow morning's session, will read a paper on the subject, "Casting Inlays of Gold, Alloys and Other Metals, also Combination Gold and Porcelain Inlays."

There being no further business before the meeting, on motion, duly seconded, adjourned to meet again at 8.30 in the evening.

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### Central Dental Association of Northern New Jersey.

The regular meeting of the Central Dental Association of Northern New Jersey was held at the Cafe De Jianne, Newark, N. J., on Monday evening, November 19, 1906. After the roll call, the president introduced Dr. Lionel M. Homburger, of New York, who read a paper entitled "Some New Ideas in Porcelain Work," which will be found elsewhere in this issue.

#### Discussion.

Mr. President and Gentlemen: While I love **Dr. Benj. F. Luckey**, to take part in the discussions of our society, I do also love to understand the subject which I am supposed to discuss, and I confess that the matter of porcelain inlays is one which I do not feel that I do thoroughly understand—only partially, and very partially at that. I among others of the dentists have been very much interested in this subject ever since it was first brought to the attention of the profession. It seemed to me, when it was first suggested and first brought to our notice, that it was the thing that I had long been seeking and wanting. I provided myself with the means of carrying on this part of our practice and have been very sincere and earnest to my efforts to give to my patients the best that I possibly could in this line. This has been going on now for several years, and I have been slowly reaching the conclusion that while there is a place for porcelain inlays in the restoration of broken teeth, that it is an operation that must be governed by exceedingly good judgment and exquisite skill to obtain the results that we wish and that our patients wish; that for general practice it is not available; that its outlook and the prospect for the use of porcelain in general practice as carried on to-day by porcelain specialists is nearing its end. Like all other good things, it has its place. But not all men who essay to do porcelain work are artists, and no man can be a success, in my opinion, in the use of porcelain unless he has the



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artistic temperament combined with exquisite mechanical skill. Dr. Homburger to-night has presented to us some very interesting and, I think, practical points. Were Dr. Homburger to undertake to apply these methods to all cases, regardless of articulation, regardless of the shape of the cavity, he would meet with a great deal of failure. The man, in my opinion, to-day who has done the greatest amount of porcelain inlay work is the man who is going to meet with the greatest amount of failure in the near future. Let one select his cases where the environment is of the proper kind, let him at the same time have this particular artistic temperament or skill or taste that I have mentioned, along with the mechanical skill to construct and insert his inlay properly, and he will probably have a success; but I say to you, gentlemen—I may be conservative—there never has been, and up to the present time there is nothing yet known that for durability and for teeth saving qualities will equal gold skilfully inserted. There are objections to it, but I am speaking now not of individual cases, but of general practice—and we all depend upon general practice for our successes and for our reputations. Nothing has ever been used and nothing at the present time is in view that will equal the use, the skillful use of gold. I have nothing to say concerning the methods of Dr. Homburger except that they seem practical; they seem good; but, gentlemen, do not undertake to carry this porcelain work too far. Use judgment, combine it with skill and I have no doubt that you will have few cases to worry you and cause sleepless nights and the wish that you had never known anything of porcelain.

The cases that Dr. Homburger has described **Dr. S. E. G. Watkins.** are cases which have bothered all of us, in and about the corners and ends where teeth have been broken. It has seemed to me for a great while that those are the places where porcelain could be used advantageously. I feel very much as Dr. Luckey does in regard to porcelain work. If I could talk as well as Dr. Luckey I would have made Dr. Luckey's speech; so we will take it that he has made my speech; I gave him the cue before the meeting, knowing that I was going to be called on, and then Dr. Luckey, knowing how I felt, thought the subject over and made my speech according to what I had told him. So, gentlemen, since he has been kind enough to do that I do not feel that it is quite right for me to take up your time. I thank you for calling upon me, and I also thank Dr. Homburger for reading the paper. I think it has really been instructive.

**Dr. Luckey.** Don't you thank me, too?

**Dr. Watkins.** I thank you, too.

I think Dr. Homburger's paper has been very instructive. There are a few points with regard to the corners that are new to me. I believe his method



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is a pretty good one; I think you can put on a better corner in that way than by attaching the pin in the porcelain. With regard to matching the shades, I think the method Dr. Homburger speaks of is a good idea, but I think that the man who obtains correct colors in his porcelain inlays must go a little further than Dr. Homburger suggests. It requires matching and blending of the colors. You can not take a color and make the whole inlay of it and get a shade which will harmonize. An inlay should be made up of several pieces of porcelain blended together; that is my experience. I also use some colors in connection with my porcelain, and I think you can get a more artistic effect—more natural. I must say that I disagree with Dr. Luckey. If you will allow me to discuss Dr. Luckey's remark I think that porcelain is the coming material for filling teeth.

I think the essayist's method of preparing the  
**Dr. H. S. Sutphen.** cavity is certainly a great improvement over no pin at all. I think that this way of securing colors is very good. You seldom find two teeth—two individuals—that require the same shade, and it is almost always necessary to do considerable blending and matching to get the colors that you desire, and it is a matter of a great deal of experiment and a great deal of practice. I can hardly indorse the statement of the gentleman from Paterson that porcelain has about reached its end. I do not think we have begun to appreciate the full value of porcelain. I do agree with him when he says that it should be used with great judgment and with great skill, and I think that when we shall have used it as long as we have used gold we will have just as much skill in the insertion of porcelain inlays and porcelain corners or other porcelain work, and get as permanent results as we get now with gold. I find that as time goes on it takes me less time to insert these porcelain inlays than it formerly did. At first it was a great hardship to do this kind of work because of the length of time which it required. I have many a time spent two or three hours on a porcelain inlay and then have not been satisfied. I tell my patients that a comparatively poor porcelain filling on the edge of the tooth is better than a good gold filling, because it is very much less conspicuous. We all know that in many portions of Europe the people will not submit to a gold filling, and they would rather come three or four times a year and have a cement filling put in than have a good gold filling. If they are satisfied with cement fillings in their teeth, which certainly do not match the structure of the teeth at all, and are satisfied to have them replaced quite frequently rather than have a gold filling, I can see why people should be more satisfied with an inlay which more approximately matches the color of the tooth than cement does, and to have even a poorly matched porcelain



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inlay than a good gold filling. My patients—many of them—say that if I am not as successful as I would like to be in the matching of the shades, still they are satisfied. I have in the last few months taken out a number of the inlays which I had put in first and have replaced them with others which I think very much better than those first put in, both in the matching of the shade and in the general artistic effect of the work itself, and I am more than glad to do that for my own satisfaction as well as for the beautifying of the mouths of my patients. I try as far as I can to do the best that I can for the good of my patients. That is the way I feel about it. Whatever is best for them in keeping their mouths in order, in preserving their natural teeth as long as possible—that is what I like to do and that is what I try to do: and I do feel that porcelain has come to stay and it will be used more and more by those who conscientiously and faithfully try to do their best with it.

In South Orange there is but little porcelain work done, but I feel that I can take issue with some of the gentlemen who have spoken. I hardly feel that porcelain work has reached its zenith yet, nor do I feel that it is superior to gold. Not very long ago I had the privilege of seeing two central incisors, the approximal corners of which had been filled with gold. They extended very nearly up to the gum margins.

The patient told me that these fillings had been in eighteen years. I examined them critically for any leakage and I failed to find any. Now, Mr. President, I do not believe that any porcelain inlay that has ever been inserted will last eighteen years and preserve the teeth as these gold fillings are preserving them at the present time. I think a great deal of the trouble with inlays is due to careless manipulation. Sufficient care is not taken in the preparation of the matrices, and then the baking is allowed to progress too rapidly; the temperature is allowed to rise too rapidly; and then when it is completed it does not fit the cavity as it should. An attempt is made to grind it out to fit, with the result that the inlay is a failure. Too many attempts are made to restore a tooth with porcelain where there is such an amount of caries that it can not possibly stand it, and there is a breakage. That is another cause of failure. I might state dozens of different causes of failure and still operators are determined to use it with lack of judgment.

We are all practically new in this porcelain work. I agree with some of the speakers that we are not familiar with it; but when we have become as familiar with porcelain inlays as we are with gold work, I do not doubt but that we shall have as many skilled operators in porcelain as there are skilled operators in gold. I think the

**Dr. Hyatt,  
Brooklyn.**



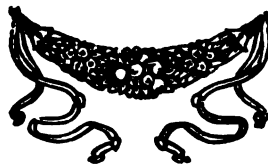
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future of porcelain is bright. When you take into consideration the number of gold fillings that we have to-day, I do not think the percentages of failures in porcelain inlays is discouraging. When failure comes, as sometimes it will, the operator, instead of being discouraged, should start out and find out what was the cause.

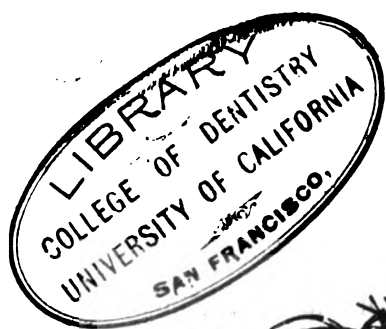
In answer to Dr. Luckey I would like to say  
**Dr. Homburger.** that although I have put in a great number of inlays I do not consider porcelain proper for all kinds of work. If we overdo anything we are bound to have failures. We must realize its capabilities and use it to the best of our knowledge, and not try to put porcelain in every cavity. As a rule, I will not put a porcelain inlay further back than an anterior cavity in a bicuspid tooth. If I have any very large cavities to fill I always use gold.

In regard to the preservation of teeth you will find that teeth of soft character will be preserved much better by means of porcelain than they may be by gold filling.

Dr. Hardy spoke of the necessity of having several shades in porcelain work; that is very true; sometimes there are two and sometimes three shades in a tooth. Consequently it is a great saving of time if, when we have made a shade, we keep a record of it and have it to compare.







### The Jamestown Dental Convention.

The Jamestown Dental Convention was a decided success. The papers were good, the clinics excellent, and the attendance even larger than had been anticipated. It was reported that the receipts from all sources would cover all expenses, and as these were necessarily large the Organization Committee may be congratulated: indeed, congratulations are due them for promoting and managing one of the best meetings of recent years.

In one respect this convention will mark an epoch in dental history. It was the first meeting at which the entire time was occupied in discussing papers which prophesy the passing of the gold foil filling. Of the four papers, one was devoted to orthodontia. The others, purely dental in character, were as follows: Dr. Van Woert presented an argument in favor of cemented fillings in preference to those mechanically retained. Dr. Alexander described his various methods of making gold inlays, and Dr. Taggart demonstrated his technique in relation to cast gold inlays.





**Inlays  
of Gold and  
Porcelain.**

That the cemented filling will, from now on, maintain a permanent place in dental practice, there can be no doubt. To what extent it will displace gold foil, and other mechanically retained fillings, will depend upon the conservative good sense of the profession at large. In the first wave of excitement and pleasure always engendered in man by the presentation of new ideas, the pendulum may swing too far in one direction: but it will return, and presently equilibrium will be established. Then it will be discovered that the best dentist will be the one wise enough to choose the proper place for filling or inlay, for porcelain or gold, and skilled to make a permanent success with either.

It may be prophesied, epigrammatically, that "the perfect gold inlay will take the place of the imperfect gold filling," though it will as often displace the slovenly amalgam monstrosities of the past. The gold foil maniac is the man so skilled in the manipulation of gold foil that he can place it almost anywhere, and believes that he can place it anywhere, and with equal success in all places. Such men in the egotism of their own skill condemn those that hesitate to follow their precepts, yet many that have done so have done it to their cost, and worse yet, to the cost of their patients. The great future usefulness of the Taggart process lies in the fact that it will enable a vastly greater number of men to save those teeth most in need of salvation, and that at the same time both patient and operator will be benefited: the patient enduring less and the operator working less.

**The Exhibit  
Nuisance.**

The one blot on the management of the Jamestown convention would not be mentioned here were it not a growing evil. Apparently the dental meetings of to-day are largely dependent upon exhibitors, but the exhibitors should not take undue advantage of that fact. They should remember that the managers and themselves are interdependent. If the former need money for expenses, the latter likewise need the meeting at which to expose their wares. Primarily a dental meeting is organized for the advancement of dental science, and however much men may be attracted by clinics and exhibits, the majority likewise desire to hear the essays and discussions. This was practically



## ITEMS OF INTEREST

impossible at Jamestown, because of the continued noise in the exhibit room, which adjoined the convention hall. Exhibitors should be content to show goods during exhibition and clinic hours. They should be willing to close up completely during the reading of papers. If they are not, organization committees in future should endeavor to eliminate the exhibit room.







### **William R. Blackstone.**

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After an illness lasting about ten days, Dr. William R. Blackstone died at his home, 20 Appleton Street, Manchester, New Hampshire, August 3, 1907. Dr. Blackstone had been a sufferer from rheumatic fever, but the direct cause of his death was embolism of the heart. His age was forty-seven years and four months.

Dr. Blackstone was one of the best known dentists in New Hampshire. He was born in Butlerville, O., March 18, 1860, the son of Joel and Sally E. (Philips) Blackstone, both natives of that town. He attended the public schools of Butlerville, and after finishing decided that he wanted to learn dentistry. He attended Ohio University, and Wesleyan University of Delaware, O. He studied dentistry three years in Greenfield, O., and later was graduated from the Ohio Dental College in 1880. He practiced two years in Newcastle, Ind., and in the fall of 1881 moved to Manchester and worked in the office of Dr. C. W. Clement for five years.

In 1886 he formed partnership with Dr. Fred F. Fisher, with offices in The Pickering, the dissolution taking place in 1899. He was known as a very fine and skilful operator. Dr. Blackstone was at one time chairman of the State Board of Examiners. On December 12, 1888, he married Miss Carrie I. Stevens, daughter of William T. and Sarah A. Stevens, of this city.

Dr. Blackstone was a whole-souled man, generous at heart, and it will be the friends who knew him best that will miss him. He was a member of Trinity Commandery, Knights Templar, Washington Lodge A. F. and A. M., and the Derryfield Club. He attended the Franklin Street Church.

Left to mourn his loss are a wife, a mother, Mrs. Joel Blackstone, of Butler, O., and two brothers, John and Joel Blackstone, of Dallas, Texas.



## ITEMS OF INTEREST

### W. D. Miller Dental Club.

*Whereas*, Geheim Medicinalrat Prof. Dr. Willoughby D. Miller, the great scientist and beloved friend for whom our club was named, has been removed by death, therefore,

*Resolved*, That in common with all the members of our profession we deeply mourn our irreparable loss.

*Resolved*, That as we were united to him not only by the admiration and respect which his scientific work spontaneously evolved, but also by the ties of warm personal friendship, we hereby pledge ourselves to cherish forever the memory of his example, which shall inspire us to higher devotion to our profession, to broader charity, to nobler living and to deeper compassion toward suffering humanity, whom he served so well and so unselfishly.

GEO. O. WEBSTER, President.

T. D. BARROWS, Secretary.







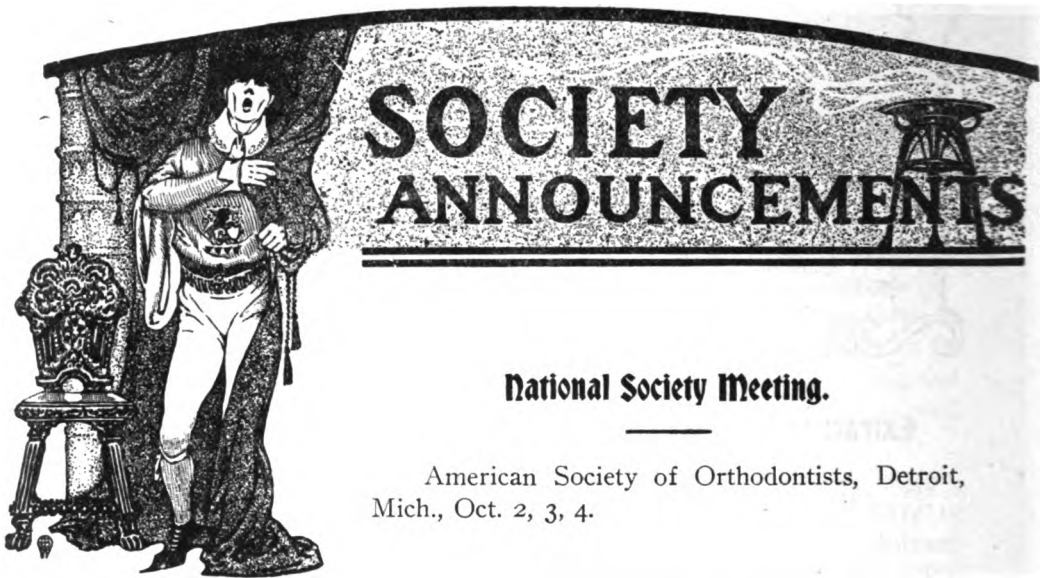
### Extract from Minnesota Dental Statute as Amended in 1907

Sec. 2316. EXAMINATION—LICENSE—REVOCATION — ASSUMED NAME.—A person not already a registered dentist of the State, desiring to practice dentistry therein, shall apply to the secretary of the board for examination, and pay a fee of \$10, which in no case shall be refunded. At the next regular meeting he shall present himself for examination and produce his diploma from some dental college of good standing, of which standing the board shall be the judges. The board shall give the applicant such an elementary, practical examination as to thoroughly test his fitness for the practice, and include therein the subjects of anatomy, physiology, chemistry, materia medica, therapeutics, metallurgy, histology, pathology, and operative, surgical and mechanical dentistry; and the applicant shall be required to demonstrate his skill in operative and mechanical dentistry. If the applicant successfully passes the examination, he shall be registered by the board as a licensed dentist, and supplied with a certificate of registration signed by *all members of the Board of Dental Examiners*.

*Provided, that any dentist who has been in legal practice in another State having and maintaining an equal standard of laws regulating the practice of dentistry with this State, for five years or more, and is a reputable dentist of good moral character, and is desirous of removing to this State, and deposits in person with the Board of Dental Examiners a certificate from the Examining Board of the State in which he is registered, certifying to the fact of his registration and that he is of good moral character and professional attainments, may, at the discretion of the board, be granted a license to practice in this State without further theoretical examination.*

The Board, upon hearing, after twenty days' notice thereof, may revoke the license of any one who, with intent to deceive the public, shall practice dentistry under an assumed name. It shall be no defense for a person prosecuted for practicing dentistry under one name, without a license, that he shall have been licensed under a different name, unless it be shown that such practice was without intent to defraud or deceive.





### **National Society Meeting.**

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American Society of Orthodontists, Detroit,  
Mich., Oct. 2, 3, 4.

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### **State Society Meetings.**

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Arizona Board of Dental Examiners, Phoenix, Ariz., Nov. 11, 12, 13.  
Fourth District Dental Society, Schenectady, N. Y., Oct. 15, 16.  
Illinois Board of Dental Examiners, Chicago, Ill., Nov. 4.  
Northeastern Dental Association, Portland, Me., Oct. 16, 17, 18.

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### **Illinois Board of Dental Examiners.**

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The annual meeting of the Illinois State Board of Dental Examiners for the examination of applicants for a license to practice dentistry in the State of Illinois will be held in Chicago, at the College of Dentistry of the University of Illinois, northwest corner of Honore and Harrison Streets, beginning Monday, November 4, 1907, at 9 A. M.

Applicants must be in possession of the following requirements in order to be eligible to take the examinations: (1) Any person who has been engaged in the actual, legal and lawful practice of dentistry or dental surgery in some other State or country for five consecutive years



## SOCIETY ANNOUNCEMENTS

just prior to application; or (2) is a graduate of and has a diploma from the faculty of a reputable dental college, school or dental department of a reputable university; or (3) is a graduate of and has a diploma from the faculty of a reputable medical college or medical department of a reputable university, and possesses the necessary qualifications prescribed by the board.

Candidates will be furnished with proper blanks and such other information as is necessary, on application to the secretary. All applications must be filed with the secretary five days prior to the date of examination. The examination fee of twenty (\$20) dollars, with the additional fee of five (\$5) dollars for a license, must accompany the application.

Address all communications to J. G. Reid, secretary, 1204 Trude Building, Chicago, Ill.

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### **Arizona Board of Dental Examiners.**

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The Board of Dental Examiners of Arizona will meet at Phoenix November 11, 12 and 13, 1907, for the purpose of holding examinations. The fee, of twenty-five dollars (\$25), should be in the hands of the secretary twenty days before date of meeting. For further particulars address

J. HARVEY BLAIN, Secretary.

Box 524, Prescott, Ariz.

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### **New Jersey State Board of Registration and Examination in Dentistry.**

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The New Jersey State Board of Registration and Examination in Dentistry will hold their semi-annual examination beginning Monday, December 9th, and continue through the 10th and 11th. Practical operating and practical prosthetic work will begin 8 A. M. Monday, December 9th. Photograph and preliminary credentials must accompany the application. Meeting held in the State House, Trenton, N. J.

For full information address the secretary, Charles A. Meeker, D.D.S., 29 Fulton Street, Newark, N. J.





### **The Southern Illinois Dental Association.**

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The fifteenth annual meeting of the Southern Illinois Dental Society will be held in East St. Louis, Ill., on the 22d and 23d of October. The president and members of the executive committee are putting forth every effort to prepare an interesting programme, and it is hoped that every dentist in our territory will do his part to make the meeting a memorable one.

HARRY K. BARNETT, Secretary.

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### **Rhode Island Board of Registration.**

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The Rhode Island State Board of Registration in Dentistry will hold its next meeting for the examination of candidates at the State House, Providence, November 6, 7 and 8, 1907, beginning each day promptly at 9 A. M.

Applications, together with the fee of twenty dollars, if first examination, should be in the hands of the secretary not later than November 1.

W. S. KENYON, Secretary.

301 Westminster Street, Providence, R. I.

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### **Connecticut State Dental Commissioners.**

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The Dental Commissioners of the State of Connecticut hereby give notice that they will meet at Hartford on Wednesday, Thursday and Friday, November 6, 7 and 8, 1907, to examine applicants for license to practice dentistry, and for the transaction of any other business proper to come before said meeting.

All applicants should apply to the Recorder for proper blanks and rules for conducting the examination. Application blanks must be filled in and sworn to, and with fee, filed with the Recorder on or before November 1, 1907.

By order of Commission.

GILBERT M. GRISWOLD, Recorder.

703 Main Street, Hartford, Conn.





### **Minnesota State Board of Dental Examiners.**

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The next regular meeting of the Minnesota State Board of Dental Examiners will be held in Minneapolis at the Dental Department of the State University, on Tuesday, November 12, 1907.

All applications must be in the hands of the secretary by October 29, accompanied by the fee of \$10.

Examinations begin at 10 o'clock sharp on the following subjects: Anatomy, Physiology, Chemistry, Materia Medica and Therapeutics, Metallurgy, Pathology, Oral Surgery, Orthodontia, Operative and Prosthetic Dentistry. The practical examination consists of the preparation of a cavity and the making of a gold filling or the preparation of the root and the making of a crown, or both, for a patient supplied by the board.

All instruments and materials necessary to perform the required operations must be brought to the examination by the applicant.

A diploma from a recognized college must be shown. Any further information will be gladly furnished by

DR. GEO. S. TODD, Secretary.

Lake City, Minn.

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### **New Hampshire Board of Registration in Dentistry.**

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The New Hampshire Board of Registry in Dentistry will hold its next meeting for examination December 3, 4 and 5, 1907, at Masonic Banquet Hall, Manchester, N. H.

A. J. SAWYER, D.D.S., Secretary.

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### **Maryland Board of Dental Examiners.**

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The Maryland Board of Dental Examiners will meet for examination of candidates for certificates November 6 and 7, 1907, at the Dental Department of the University of Maryland, Baltimore, at 9 A. M.

For application blanks and further information apply to

F. F. DREW, Secretary.

701 N. Howard Street, Baltimore, Md.





## **The National Dental Association Officers, 1907-08.**

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The National Dental Association, at its eleventh annual session, Minneapolis, July 31, elected the following officers for the ensuing year: President, Wm. Carr, New York city; vice-president for the East, Wilbur F. Litch, Philadelphia, Pa.; vice-president for the South, J. P. Gray, Nashville, Tenn.; vice-president for the West, Alfred Owre, Minneapolis, Minn.; corresponding secretary, Burton Lee Thorpe, St. Louis, Mo.; recording secretary, Chas. S. Butler, Buffalo, N. Y.; treasurer, A. S. Melendy, Knoxville, Tenn.

Executive Committee.—(New members.) L. Meisenberger, Buffalo, N. Y.; F. B. Kremer, Minneapolis, Minn.; M. F. Finley, Washington, D. C.

Executive Council.—H. J. Burkhart, chairman, Batavia, N. Y.; J. Y. Crawford, Nashville, Tenn.; A. H. Peck, Chicago, Ill.; F. O. Hetrick, Ottawa, Kan.; B. Holly Smith, Baltimore, Md.

Next place of meeting Boston, 1908.

BURTON LEE THORPE, Cor. Secretary.

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## **New Jersey State Dental Society.**

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List of officers of the New Jersey State Dental Society elected at their July meeting: Walter Woolsey, D.D.S., president, Elizabeth, N. J.; Frank G. Gregory, D.D.S., vice-president, Newark, N. J.; Charles A. Meeker, D.D.S., secretary, 29 Fulton Street, Newark, N. J.; Dr. Henry A. Hull, treasurer, New Brunswick, N. J.

Executive Committee—Frank G. Gregory, D.D.S., Chairman, 7 West Park Street, Newark, N. J.; Harvey Iredell, D.D.S., New Brunswick, N. J.; Charles H. Dilts, D.D.S., Trenton, N. J.; W. A. Jaquette, D.D.S., Somerville, N. J.

Membership Committee—Dr. Oscar Adelberg, Elizabeth, N. J.; William G. Gelston, D.D.S., Camden, N. J.; Henry Fowler, D.D.S., Harrison, N. J.; William T. Thompson, D.D.S., Asbury Park, N. J.; Thomas F. Martin, D.D.S., Rahway, N. J.





## **The Principles and Practice of Filling Teeth with Porcelain.\***

By DR. JOHN Q. BYRAM, Indianapolis, Ind.

### **The Treatment of Teeth Affected by Malformation and Erosion.**

In many cases of malformations, the teeth are usually marked by pits and grooves; they present an atrophied condition, and their incisal halves are partially denuded of enamel. If more than the incisal one-half is involved, the malformation can be corrected best by constructing an all porcelain jacket crown. If, on the other hand, less than the incisal one-half is involved, the condition may be remedied with less pain and annoyance to the patient by the use of a jacket partial crown. Such an operation is not indicated unless the tooth can be prepared in such manner that the remaining stump affords a secure attachment and permits a sufficient bulk of porcelain to insure strength.

The approximal walls should converge slightly toward the incisal edge (Fig. 51), and the shoulders formed by their termination should run at right angles to the axis of the tooth. The shoulders formed on the labial and lingual surfaces should run at right angles to the curves of these surfaces. Enough of these walls should be involved to give a sufficient bulk of porcelain and to prevent the tip from appearing bulky and unsightly (Fig. 52).

\*Copyright 1907, by Consolidated Dental Manufacturing Co.



## ITEMS OF INTEREST

The approximal walls should be prepared with knife-edge stones, while the remaining enamel should be removed from the labial and lingual surfaces with flat-face diamond and fissure burs (Fig. 4A and 5B). After which plug finishing burs and Arkansas stones (Fig. 4B and 5C) should be used to polish the tooth stump.

In case of extensive erosion on the labial surface and where there is no decay on the approximal or lingual surfaces, the tooth may be



FIG. 51.

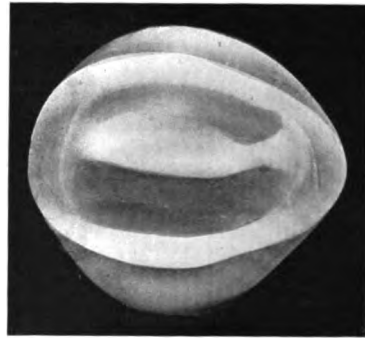


FIG. 52.

treated by constructing a veneer of porcelain for the labial surface. It has been found that such operations check erosion and preserve the vitality of the tooth for an indefinite period. A shoulder following the curvature of the gingival line (Fig. 53) should be formed across the labial surface, and enough of this surface should be involved to permit the porcelain to be of a sufficient thickness to insure strength and to prevent a change of color by the cement (Fig. 54). The entire incisal edge should be involved to insure proper retentive resistance and to prevent fracture of the porcelain. The incisal wall should form an acute angle with the labial surface (Fig. 55).



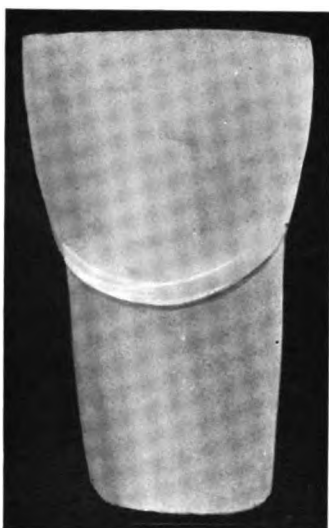


FIG. 53.

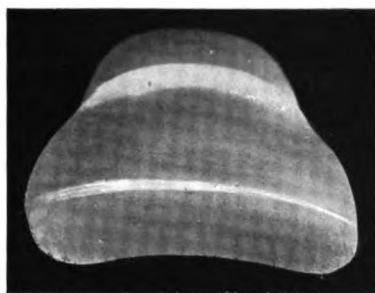


FIG. 54.

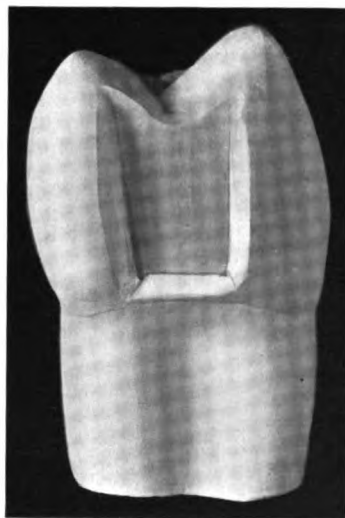


FIG. 56.

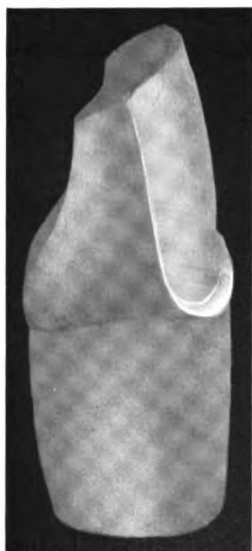


FIG. 55.



FIG. 57.



## ITEMS OF INTEREST

After the incisal edge has been removed with flat-face stones, sufficient enamel and dentin should be removed with stones from the labial surface to insure proper thickness of porcelain. Then the shoulder should be formed with flat-faced fissure burs at the gum margin. After this has been done the approximal margins are to be made smooth with sharp chisels and Arkansas stones.

### **The Preparation of Cavities in Bicuspid and Molars.**

Experience has proved that porcelain is not the best filling material for most cavities in bicuspid and molars. Their occlusal surfaces present a series of inclined planes which when restored with a friable material, lacking in edge strength, may cause imperfect fillings in a short time, by the breaking of the margins of these fillings. There are, however, many cavities in these teeth that should be filled with porcelain for the cosmetic effect. The marks of occlusion should be studied in the preparation of occlusal and approximo-occlusal cavities, and their margins should be carried to points where they will have the least masticatory stress, for thereby the life of the filling is increased. If cavity margins are formed at points at which the stress is unduly strong, these margins of porcelain will fracture and leave faulty fillings.

The function of a filling is: first, to check the existing decay and to prevent if possible its recurrence; second, to restore the original form of the tooth in order that it shall maintain its proper relation with the other teeth and to protect the gum in the inter-proximal space, and third, to meet the cosmetic requirements. While porcelain is not indicated in many forms of cavities in bicuspid and molars, there are cases in which we should not lose sight of the cosmetics, and in such cases porcelain should be given due consideration. Gold foil and amalgam have preserved many teeth for a considerable length of time, but when we note the number of failures that have been made with these materials, we feel that we are justified in considering the inlay principle of filling cavities in bicuspid and molars.

It is essential that teeth with approximo-occlusal cavities be wedged, in order that the gum in the inter-proximal space may be protected; that the margins of the filling may be more easily cleansed; that the tooth when filled may be given its natural contour and that the matrix or impression may not be distorted upon removal from the cavity. Too many dentists lose sight of the advantages of wedging the bicuspid and molars before filling cavities in these teeth. It is just as important to wedge these teeth before filling as it is to wedge



incisors and cuspids. If more attention were paid to this step of the operation, there would be fewer cases of recurrence of decay at the margins of fillings.

**Approximo-Occlusal Cavities.**

In case the patient has reached the period of immunity, and there are no fissures extending from the cavity, mesio-occlusal cavities in bicuspid and first molars, without a step may be filled with porcelain. The axial margins should be extended far enough so that they will not come in contact with the approximating tooth.

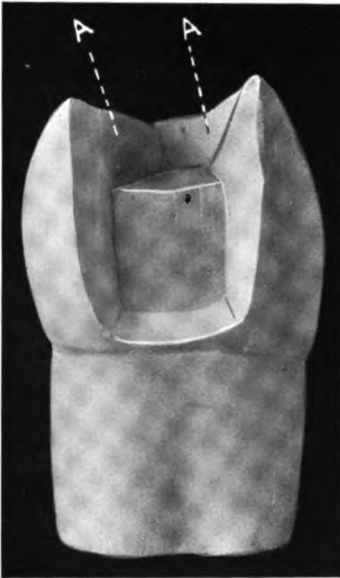


FIG. 58.

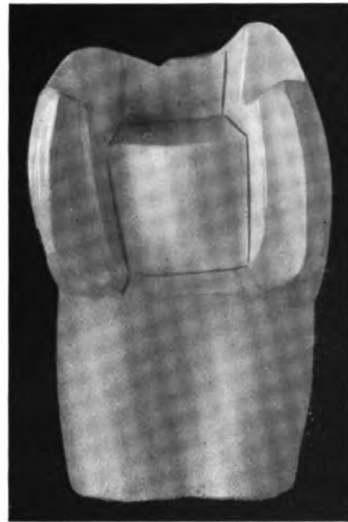


FIG. 59.

The gingival wall should be flat and should form a right angle with the pulpal wall. The buccal and lingual walls should diverge toward the approximal and occlusal margins (Fig. 56). The walls should be grooved in the dentin occluso-gingivally to form mortices (Fig. 57), and they should run at right angles with the approximal surface.

**Approximo-Occlusal Cavities with a Step.**

The gingival wall should be flat and should form a right angle with the pulpal wall. The buccal and lingual walls should be so prepared that their margins extend in straight lines which slightly diverge toward the occlusal surface (Fig. 58). These walls



## ITEMS OF INTEREST

should converge slightly toward the pulpal wall and they should unite with this wall in the form of a curve.

The step should be deep enough to insure strength to the porcelain, and if possible it should be wide enough to form its margins at points where there is no masticatory stress. Its seat should be flat and at right angles with the pulpal wall. Its axial walls should diverge toward the approximal marginal ridge (Fig. 58A), and also toward the occlusal surface.



FIG. 60.

### **Large Approximo-Occlusal Cavities.**

In extensive cases the buccal and lingual cusps should be involved and the cavity margins extended on the buccal surfaces, obliterating to a large degree frail margins of porcelain on the occlusal surface. The gingival wall should be flat and at right angles with the pulpal wall, and its margins should unite with the buccal and lingual margins on these surfaces (Fig. 59). The buccal and lingual margins should extend occlusally in the form of a straight line to the occlusal third and then they should extend laterally in the form of a reverse curve to the axial walls of the cavity, uniting with the occluso-axial margins of the cavity in the form of a curve (Fig. 60). The walls of the cavity should slightly diverge from the pulpal wall in both directions.



In cases of bucco-occlusal or approximo-occlusal cavities involving most of the crown of the tooth and extending beyond the gingival line the cavity may be prepared as outlined in Fig. 61A. The posts are inserted in one or more canals and platinum caps are made to fit over them. The matrix is burnished to conform to the walls of the

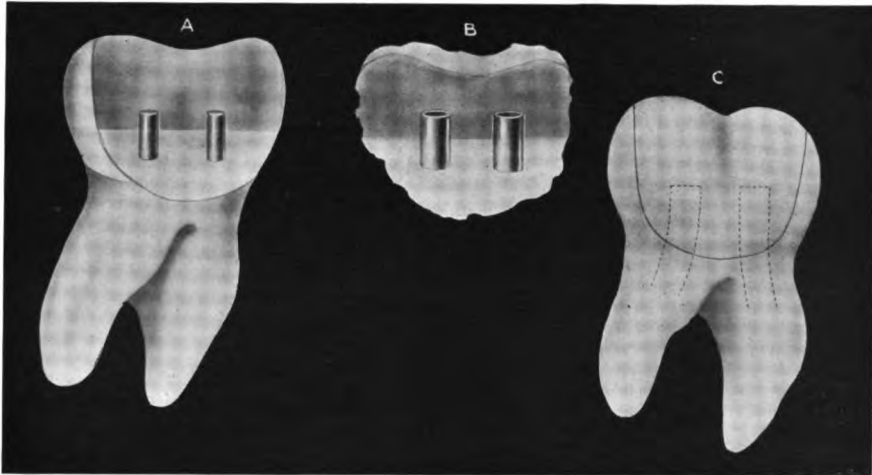


FIG. 61.

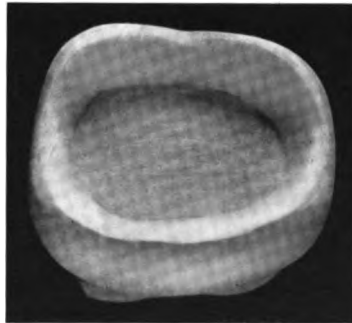


FIG. 62.

cavity and the caps are held in relation by sticky wax. After chilling the wax, the matrix and caps are removed, and soldered (Fig. 61B). The porcelain is then fused around the caps and the matrix is readjusted for the final burnishing. The matrix becomes a part of the inlay and should be properly trimmed to conform to the margins of the cavity



after the inlay has been finished. After the inlay has been set the matrix should be finished to the margins of the cavity as a subsequent operation (Fig. 61C).

### **Deep Cavities in the Occlusal Surface of Molars.**

Cavities in lower molars involving the occlusal surface to the marginal ridges leaving the axial walls unsupported by dentin and in which there is no decay on the approximal surfaces, may be filled with por-

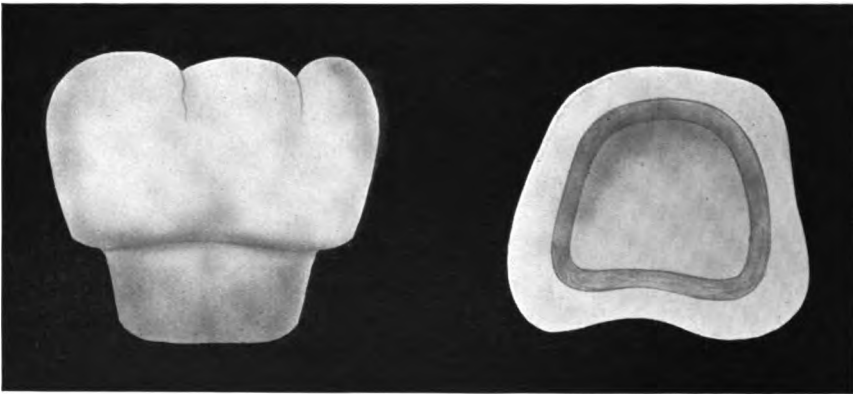


FIG. 63.

celain. The margins of the cavity should involve the marginal ridges and they should be beveled in such a manner that they form obtuse angles with the axial walls of the cavity. The pulpal wall should be flat. The axial walls should be extended far enough to protect the margins from stress and they should form slightly obtuse angles with the pulpal wall. (Fig. 62.)

For pulpless molars where the entire occlusal surface is involved, the pulp chamber is so prepared that the axial walls are slightly divergent (Fig. 63). The occlusal margins are beveled to form slight obtuse angles with the axial walls. In case additional retentive resistance is required, a post may be inserted in one canal and permitted to extend far enough into the porcelain to give a strong retention. While this gives an entire crown of porcelain, the principle of construction is the same as applied to that of inlays.



## A Plea for More Scientific Forms of Artificial Teeth.

By J. LEON WILLIAMS, D.D.S., London, England.

I wish to express a few words of endorsement of Dr. Stewart I. Spence's plea at the close of his very able and interesting articles on articulation of artificial teeth which have recently appeared in *ITEMS OF INTEREST*.

Dr. Spence says: "Now, to get these six inclines (three in each jaw) ground so as to fit perfectly is well-nigh impossible. *All this could be avoided by the manufacturers.* If they would make teeth according to Nature's patterns, and make the upper and lower teeth to occlude with each other, it would be comparatively child's play to set up scientifically articulated porcelain dentures. If the manufacturers would also abandon the thousand and one molds on the market, and agree together to use only similar and a very few molds, how easily then might the dentist obtain the exact size and shape of any tooth required in all ordinary cases."

This is precisely the view which I presented before the Odontological Society here in London some five years ago, and I afterward met the board of directors of one of the dental manufacturing companies and pointed out the very serious defects in all artificial teeth as they are made to-day, the superfluosness of the great number of molds and the complete lack of all scientific system in the management of the whole business. Their reply, substantially, was that the men who would most appreciate the changes which I suggested buy very few artificial teeth, and that the dentists who purchase nine-tenths of the teeth sold are satisfied with what is supplied. I am sure that these reasons show short sighted business policy, and if I am not greatly mistaken, some manufacturer of artificial teeth will, within a year, adopt most of the changes which I am about to suggest, and the manufacturer who is first in the market with teeth made and arranged according to these suggestions, will find his capacity greatly taxed to supply the demand.

Let us begin with the occluding or articulating surfaces of the teeth. These surfaces, as presented to-day in all artificial teeth that I know anything about, are simply utterly foolish. There is no other expression that fits the situation. They are utterly foolish, and the efficiency of artificial teeth is diminished one-half by this foolishness. For the most part the molars and bicuspid, especially the molars, are too

**Faults in  
Artificial Teeth.**



## ITEMS OF INTEREST

small. The grinding surfaces of molars and bicuspid should be carefully copied from typical forms of natural teeth, before they are much worn. If it were desired to give a worn effect to the teeth, as it often is, this could be much more easily and effectively accomplished if the teeth had the right shape at the start. With reference to the molars an important point has, so far as I am aware, been entirely overlooked by all writers on this subject, and that is the ever increasing disparity in the width of the upper and lower jaws in edentulous cases, the posterior part of the maxilla becoming relatively narrower as absorption proceeds. This condition has never been provided for in the making of artificial teeth. Yet it could easily be done by increasing the outward-downward slope of the buccal surfaces of the upper teeth and giving the reverse slope to the buccal surfaces of the lower teeth. Nature has already given the hint for this, but it will probably be necessary to slightly exaggerate this hint to meet the exigencies of the artificial condition. If this were done the necessity for reversing the lower molars as described by Dr. Spence would never arise. It would enable us to place the upper molars a little more outside the ridge without introducing the difficulties which follow this action with teeth as now made.

### **Number of Molds Required.**

With reference to the number of molds required, I have for years maintained that ten types of teeth with about six sizes for each type would, *if the types were carefully studied*, give us a far better selection of teeth than is now presented by all the molds of all the manufacturers combined. Let the manufacturer consider for a moment the saving effected in capital invested by this plan and the greatly enhanced convenience to both dentist and manufacturer which would be gained. A card of teeth showing the different types and sizes and a good assortment of shades would place the dentist in a better position for selecting exactly what he needs than he now is when standing before the largest stock of teeth carried by any firm. It is simply astounding that in the United States, where scientific methods are so much talked about and where time is considered such an important factor in business, that something of this method has not been thought of before.

### **Sexual Difference in Teeth.**

Another thing that should certainly be done by the manufacturer adopting these suggestions, is to design all molds in duplicate for male and female. There is as much sex character in the teeth as in any other feature, and it is quite time that this should be recognized by a body of men claiming to be scientific.



Let us say, then, that we have the four basal types of temperaments—biliary, sanguine, nervous and lymphatic—represented, with one crossing of each with the others. That gives ten types of teeth which with six sizes for each type would make one hundred and twenty molds to cover the entire range of male and female forms. I do not know how many molds of teeth the different manufacturers are represented by, but I have no doubt there are several thousands on the market. What a waste of time and money! What a systemless system! One manufacturer offers teeth from five hundred molds. Another manufacturer offers five hundred more quite different. None of them are based on careful artistic studies of temperamental types of natural teeth. The profession has no voice in the matter—it takes what is offered. And the teeth that are offered bear about the same relation to what we should have from the artistic point of view, that the illustrations in a fashion magazine bear to the portrait work of an artist of repute. Everything which might be included under the artistic expression, “Accidents of Nature,” as they are found in natural teeth, seem to be carefully avoided in artificial teeth, and that, of course, is just the reason why they look artificial. The surface texture and the color of artificial teeth is positively bad—worse than it was a few years ago—at least, it is so in the teeth offered here in England. There is no fine, natural gradation of shading from tip to base, and the base or neck of the tooth is nearly always much too yellow. One might enter still more into detail over the matter, but my purpose in this letter is merely to call attention in a general way to the subject. Is it not about time that this state of things were changed? And it can be changed without difficulty, and in a year or two. If the Editor of this magazine would take up this important matter with the energy he has shown on more than one occasion when working for the benefit of the profession, we might, within two years, have artificial teeth on the market which would make the products of to-day unsalable to all who have ideals or ambition to excel in this field. In the meantime I ask all who are interested (and that should mean every reader of this communication) to write, if only a postcard, to Dr. Ottolengui expressing views and desires, and I especially ask all who are willing to assist in the undertaking by taking impressions and making models of fine sets of natural teeth to indicate this in their letters. The response to this appeal will indicate just where we stand as a profession on the subject of dental prosthesis.\*

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\*Since the above was written I have discovered that Dr. M. H. Cryer has called attention to this effect of resorption on the relative widths of the jaws. I am glad to be able to add the weight of his authority to the demand for a modification of tooth forms which will to some extent overcome this difficulty.—J. L. W.





## Alveolar Abscess Breaking on the Outside.

### Preventive Treatment.

By DR. B. E. FORTINER, Camden, N. J.

Lately I have seen so many disfiguring scars along the lower margin of the mandible that I wish to describe a method of treatment that will, if followed faithfully, positively prevent such a termination from any abscess to which it is applied.

Suppose the patient presents with a swollen jaw caused by a neglected tooth and a putrescent pulp. The tooth is so sore that it cannot bear the least pressure, but there is no discharge of pus; even if opened there is no pus, for while the abscess does not appear to be advancing toward resolution the tendency of the swelling appears to be downward. If any hot, moist poultice or application is placed on the outside of the face it will encourage the formation of pus and the tendency of the pus is to follow the course of the least resistance; and by moistening and softening the skin you invite the pus to break through on the outside.

#### **Calcareo Sulphuricum.**

I use two constitutional remedies in these abscesses. If the swelling is very hard and I am not quite sure that pus has formed I prescribe *calcareo sulphuricum* in the third trituration—it is called three X (3.X.). It is not a homeopathic remedy, although it is purchased at a homeopathic pharmacy. Get some fine lawn, such as dress ties are made of; have it washed so that it will be soft, put about fifteen grains of the *calcareo sulphuricum* 3.X. on a little piece of the lawn, about two and a half inches square, bring the edges together and tie with thread into a little bag about two-thirds or three-quarters of an inch long, dip this in water to moisten it, and lay it on the gum over the sore tooth next to the cheek. These bags are soft and will lie over the sore tooth without causing much mechanical irritation by their presence as do tablets. It will take nearly an hour for the powder to dissolve; the patient is to swallow the saliva that forms in the mouth while the bag is in. Give him a dozen of them and have him apply one every hour. This remedy has the effect of preventing the formation of pus and it seems to produce absorption and relieves the pain. I have seen it quickly reduce large stony blind abscesses when nothing else would.

#### **Silicea.**

My other remedy is *silicea* 6X. *Silicea* is pure quartz. It is a Schuessler tissue remedy, its crystals are sharp and it cuts ahead of the pus, making



an easy access or passage for its escape. Unlike the *calc. sulph.* it rather favors the formation of pus so that if the patient presents with an acute abscess, with pus positively developed, suffering an agony of torture with the possibility that it may break and discharge on the outside, I give him a dozen of these bags containing fifteen grains of *silicea* 6X. Put one as near the swelling on the gum on the inside of the mouth as you can, have him swallow all of the saliva, and keep repeating this every hour. Besides this, I prescribe four drams of Wampole's hypo-bromic comp. to which I add one grain of acetate of morphia. I direct him to go home and go to bed in a dark room and take half a teaspoonful of this mixture in a tablespoon of water every half hour until he goes to sleep. While he is asleep the *silicea* acts and if the abscess has not broken of itself while he is asleep, the condition on awakening will be very much relieved because the *silicea* will have made an easy path for the pus, and it will cause the pus to come toward the gum and break through the gum, and not through the jaw and skin. While *silicea* favors the escape of pus the quantity will not be as great as where it is not used.

In cases where the jaw has become necrosed, *silicea* quickly throws off the dead bone and induces rapid healing. Scraping of the bone is never necessary where *silicea* is prescribed.

If these remedies are used in the treatment and in alveolar abscesses, a vast deal of suffering will be avoided and many disfiguring scars on the neck and along the margins of the jaw will be prevented. I believe that the application of any moist substance, such as antiphlogistine or poultices, to the surface in the presence of threatened alveolar abscess is malpractice. Dry heat, such as hot hop bag, hot salt bag or hot water bag is permissible and helpful, but no moisture. A good antiseptic mouth wash diluted with hot water should be used in the mouth three or four times a day, especially after the abscess has broken. Then half-grain tablets of *calcareo sulph.* 3.X. should be given, five tablets every three hours to terminate the discharge of pus.







## **Orthodontia in Relation to the Development of the Bones of the Face.**

By FREDERICK C. KEMPLE, D.D.S., New York City

*Read before the New Jersey State Dental Society, July, 1907.*

Within the past decade much light has been thrown on the internal anatomy of the head and face, by which we have been able not only to gain a far better knowledge of the arrangement of the various parts, but also to study the physiological and pathological relations of its different structures.

The fact that well rounded, fully developed dental arches are almost invariably accompanied by well developed nasal spaces, well developed ethmoid, sphenoid and maxillary bones, we have learned, is not a simple coincidence, but the result of a relationship among the different structural parts of the face which is so intimate that the developmental influence of one part must affect to a greater or less degree the development of every other part.

Per contra, if the development of any part of the face be arrested, or if deformity occur early in life, the result will be a more or less abnormal or deformed development of every other part. Because of this far-reaching influence, the operator in caring for the teeth of his little patients should be eternally vigilant for the appearance of any aberration in the arrangement of the deciduous, or the development of the permanent denture.



## ORTHODONTIA

The close pathological relationship of the various structures in this region and the interdependence of some of the different organs found within this field have only of recent years been recognized. Until within the past decade or two oculists treated the eyes and otologists treated the ears as if these organs were each complete in themselves. Their physiological relation with the nose and throat and teeth was not considered in diagnosis. Lesions of either were usually regarded as local, and received only local treatment.

In the light of present day knowledge, however, this method of local diagnosis has practically passed away. No diagnosis is complete which does not consider the part affected in its relation to the organism as a whole. This is particularly true in the treatment of eye and ear lesions. Specialists now recognize that there is no region in the entire human anatomy where reflex disturbances are more common and, with this fact in mind, their diagnosis not infrequently begins with an examination of the teeth.

It is only necessary to examine a few of the splendid anatomical sections of the head and face made by Dr. Cryer to see the intimate relationship between the upper dental arch, the nasal spaces and the maxillary antra, and in turn see how the constriction of or narrowing of the dental arch will cause a collapse of these spaces and disarrange the entire internal anatomy of the face.

In some of these specimens where the upper dental arch is much constricted, the nasal spaces are found to be almost entirely occluded and the maxillary antra nearly obliterated. Such malformed conditions of structure are produced during the early period of growth while the bony framework is yet in a plastic or formative state. The writer believes nasal obstruction in very early life to be an important causative factor in misdirecting the forces which act in the formation of the jaw.

All young growing structures manifest great susceptibility to any constantly acting force, however slight the force in itself may be. The readiness with which the bones of the skull and face of young children yield to the lightest pressure is quite remarkable.

**Lack of Resistance  
During Youth.**

Ethnologists believe the kind of pillow on which an infant lies will modify the shape of the skull. A cicatrix from a burn may permanently change the shape of the facial bones. In cases where the head has become fixed to one side through disease the position of the eye and shape of the skull has been changed. Darwin has shown that such a trifling cause as the lopping forward of one of the ears of a rabbit "drags forward all the bones of the skull on that side."



## ITEMS OF INTEREST

Thus it is easy to see in the growth of such a complex structure as the human face how a change from the normal to the abnormal in the forces acting on its developmental growth, due to whatever cause, and however insignificant the change may appear, might result in such an abnormal anatomical arrangement of the parts as to materially interfere with their functional efficiency.

Injury to the head or face at birth, pathological conditions of the nose or throat in early childhood, habits of thumb-sucking or lip biting, and premature loss of either deciduous or permanent teeth, are all prolific causes of this change from the normal to the abnormal in the development of the bones of the face.

The writer will add one other cause which he regards as the most important, because the most universally active—the primary cause of some of the causes enumerated above. That is the tendency of all organs to vary through change of function.

### **Influence of Altered Functions.**

From the protamoeba to man, function has preceded structure. From the lowest form of life to the highest every advance made in structure seems to have been for the better adjustment of the organism to perform its functional activities. And when these activities have become changed through change of environment or mode of living, a change of structure has gradually followed.

Darwin found "in the domestic duck that the bones of the wing weigh less and the bones of the leg more in proportion to the whole skeleton than do the same bones in the wild duck," and he assumes "that this change may be safely attributed to the domestic duck flying much less and walking more than its wild parent."

It has been found, also, that the weight of the lower jaw is greater in savage than in civilized races—in about the proportion of 5 to 4—while the mean weight of the skulls examined was nearly the same. (Talbot, page 155.) May not the same conclusion be drawn here as in the case of the wild duck?

Also, many of the most eminent men of science agree that "modifications of structure caused by modifications of function are transmitted to the offspring."

This, in the writer's opinion, can be ascribed as the most potent cause for the great number of malformed, poorly developed jaws of the present civilization.

So great has been the change in the structure of the jaws of civilized man that a well developed face with the full complement of thirty-two teeth in nearly normal occlusion is so rare as to excite comment and admiration from every dentist.



Among semi-barbarous or primitive tribes exactly the opposite conditions prevail. Well-developed jaws, teeth comparatively free from caries and in nearly normal occlusion are the rule, rather than the exception. These people have continued to use their jaws and teeth for the purpose of mastication, and their diet includes articles so tough as to require the most vigorous chewing. Among the Esquimaux it is a custom to chew the raw skin of the whale or seal for its blubber; the Modoc Indians are said "to munch the raw kais root all day long;" and the "Bushmen, when short of food in winter, chew prepared gau skin until their very jaws ache."

**Effects of  
Disease.**

Thus you may go through the entire catalogue of primitive people and find the same vigorous chewing of tough roots, herbs, skins, etc. Note the difference between the functional activity of their organs of mastication and those of civilized man and, the writer believes, you have found the cause for the great difference in the structural development. The masticatory apparatus of civilized man is simply suffering from disuse.

The lack of development of the jaws in highly civilized races—and this applies particularly in America—is observed almost as frequently in very young children as in adults. Symptoms of abnormal development, and in some instances marked malocclusion, may appear as early as the second or third year. In the deciduous denture of five or six years this tendency toward malocclusion becomes more apparent in an increasing number of cases in which, if the growth of the jaw be not stimulated, the result will inevitably be a malocclusion of the permanent teeth, and a consequent derangement of the anatomy of the face.

**Malocclusion  
of Deciduous  
Teeth.**

In many of these cases the departure from the normal at this early age is so slight that only the most careful observation will detect it, or it may appear so insignificant as to receive no consideration, and yet within this inconsiderable aberration may lie hidden the forces which, through their continued action along abnormal lines, will result in a most aggravated form of malocclusion. A deformity may result which will involve the structures of the internal face to such a degree as to materially interfere with their physiological efficiency.

It is in cases of extreme malocclusion in adult life that reflex disturbances are so common and frequently difficult of diagnosis, a condition which causes this entire field to become of peculiar interest alike to the otologist, the oculist, the rhinologist and the dentist; and the writer





## ITEMS OF INTEREST

will venture the prophecy that the day is not far distant when consultations among these specialists, in which the opinion of the dentist will have its full weight, will be quite the common thing.

And yet many of these cases of extremely narrow upper dental arches with consequent narrowness of the nasal spaces and prominent upper incisors, which in adult life defy the best efforts of the orthodontist, were probably in their earliest stages but simple aberrations in the development of the denture, the correction of which could probably have been accomplished by very simple means, thus allowing the uninterrupted growth of the denture to continue to completion. Such treatment might only have entailed the placing of one or two teeth at eruption in their correct positions, or the slight expanding of one or both arches as an aid in allowing the erupting teeth to assume of themselves their natural positions.

You may say these conditions are only hypothetical and do not describe specific cases. This is true, but the conditions were made general in order to cover more of the field of orthodontic work, and because the conditions named are descriptive of similar cases that come to our notice almost every day.

In the deciduous denture the lack of development in the incisive region is frequently overlooked entirely until the appearance of the permanent lower centrals which in erupting are crowded out of position for lack of space—a condition which is not infrequently brought to the attention of the dentist by the mother of the child. At the same time the lack of development in this region had probably been directly indicated for a period of two or three years prior to the eruption of these teeth.

In every case where interstitial spacing between the deciduous centrals, laterals, cuspids, and first molars fails to appear, malocclusion of their permanent successors must inevitably result.

In jaws which seem to have a normal development the spacing of these teeth is usually well marked as early as the fourth year.

The combined width of these spaces should amount, approximately, to the difference between the combined widths of the six anterior deciduous teeth and the combined widths of their six permanent successors—thus allowing sufficient room for the permanent teeth to erupt in normal order and position.

When nature fails in this development, the writer believes it to be the duty of the dentist to give his assistance as soon as the symptoms indicate such need.



# ORTHODONTIA

## **Early Treatment.**

By very simple means it is possible to stimulate growth in the incisive region at an early age, and by this growth probably abort a deformity which, if allowed to mature, would require months of treatment for its correction.

The same may be said of many of those cases which are characterized by the receding chin and apparently excessive protrusion of the upper incisors. Symptoms heralding this condition appear in many deciduous dentures, and the early treatment of these cases becomes very simple when compared with the treatment required after the eruption of the permanent teeth.

In deciding at what age to treat irregularities of the teeth, this fact should be kept in mind: by early treatment we are assisting nature in overcoming some of the obstacles which interfere with orderly eruption, and with these obstacles out of the way the teeth establish themselves in their proper positions through the natural process of growth. By later treatment, *i. e.*, after the permanent teeth are fully erupted, the operation becomes one of reconstruction; we compel a resorption of tissue and nature must do her work a second time.

## **Automatic Regulation of Teeth.**

It is a grievous error to regard any case of malocclusion as self-corrective. Occlusion always implies a contact of the upper and lower teeth. If, when the upper and lower teeth are in contact, some of their inclined planes become engaged in an abnormal relation, it is impossible for nature to overcome this locking process. Nature will do her full duty in development along proper lines if she be not too heavily handicapped, but when she is obstructed in her orderly course she simply does the best she can under the circumstances.

As often observed, teeth in process of eruption present a very irregular appearance, but upon careful examination they are found to occupy their correct positions in relation to their antagonists of the opposite jaw. In such cases the malpositions of the teeth are more apparent than real. As the development of the denture proceeds, the inclined planes become properly engaged, and through their influence the apparent irregularity of the teeth disappears. It is only under these conditions that an irregularity is self-corrective, and distinction should be made between such an irregularity and malocclusion. Where malocclusion really exists the deformity is increased and correction made more difficult with the eruption of each succeeding tooth. The forces at work being misdirected by the improper locking of the cusps, the influence of the inclined planes and the eruptive force of the teeth tend toward further deformity as the denture approaches completion.



## ITEMS OF INTEREST

It is for the purpose of gaining the assistance of the inclined planes and the eruptive force that the writer urges early treatment wherever it be possible. Guide the teeth to their correct positions in the arch during the eruptive period, rather than drag them through the alveolar process after they have become established in their improper positions.

### **Preventive Treatment.**

It would be better still, if before the appearance of the permanent teeth sufficient development of the jaws can be induced to allow their orderly eruption without any interference on the part of the dentist. By either of these methods a denture is established practically through the process of natural growth, one that approaches the normal as nearly as the tooth forms of the individual case will permit.

Development as described may often be stimulated through a very gradual expansion of the lower arch before the loss of any of the deciduous teeth, the expansion being produced so slowly that the enlargement of the upper arch follows through the force of occlusion, the little patient suffering no pain and little if any inconvenience.

Such treatment is prophylactic—it is prevention rather than cure—and is entirely in accord with the accepted principles of orthopedic surgery.

In this connection, the importance of preserving the deciduous teeth till such time as their successors appear, can not be too earnestly urged. Thus many of the deformities of the jaws and face with which we have to contend might be aborted by judicious early treatment.

The age at which the natural growth of the jaws is complete probably varies within a wide range, but the fact that nature unassisted has been unable to assert her mastery in the correction of many of the deformities, due probably to nasal obstruction, after the age of seven or eight years has given rise to the impression that the growth of these parts is nearly complete at an early age. Kyle, in his "Diseases of the Nose and Throat," says: "The worst feature of these developmental deformities is, that unless perfect nasal respiration is established *early in life*—i. e., before the fifth or sixth year, or not later than the seventh—the bony and cartilaginous framework becomes so firm that little can be done toward increasing the nasal space for breathing, and the individual will, of necessity, be a mouth-breather for life." (Page 268.)

The writer believes in those cases of nasal obstruction where mouth-breathing has continued for sufficient length of time to produce a narrowing of the dental arch and collapse of the nasal space, the nasal space fails to develop after the rhinologist has completed his work, not because the "bony framework is too firm" to permit development, but because at



## ORTHODONTIA

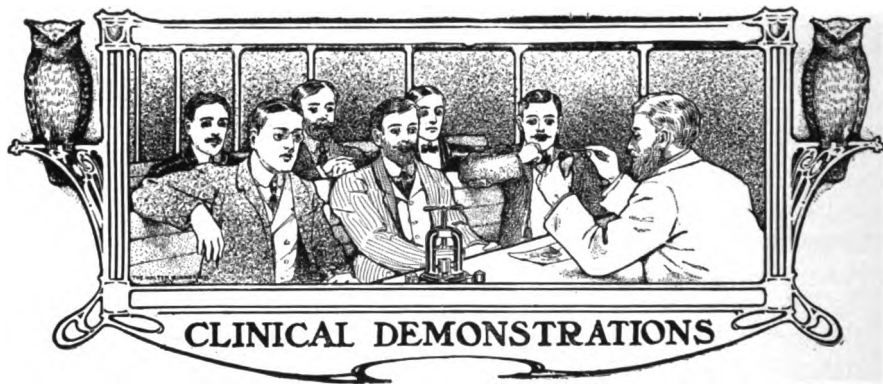
the age of six or seven years the cusps of the teeth have become locked in this cramped position and nature cannot release herself from the influence of their inclined planes. The fact that development of these parts immediately follows the release of the teeth from their cramped positions would indicate that growth here had not ceased, but had been checked by forces acting abnormally.

Unfortunately, we have no means of measuring, or even observing the changes which take place in the internal face following orthodontic treatment, but that internal changes do occur and subsequent development of the parts result is evidenced by every successful operation.

The widening of the alveolar arch in the molar and bicuspid region will sometimes, in extreme cases, amount to a full half inch, and in such extreme cases the entire contour of the external face becomes much changed. In many cases where the efforts of the rhinologist have failed to relieve the mouth-breathing, relief has followed orthodontic treatment, not only at the age of six or seven, but as late as the fourteenth or fifteenth year. In many cases where considerable movement is required in order to place the crowns of the teeth in their proper relation, the teeth immediately following such treatment stand at a decided angle, so much so that the buccal cusps of the molars and bicuspids are frequently not in contact, and in this position can be of practically no service for mastication, but if the teeth be properly retained their roots gradually assume their nearly vertical direction, and within a year or two the buccal cusps are once more in occlusion and ready for better service than ever before.







## **Carmichael Crown-Post Attachment and Application of the Davis Crown.**

By J. P. CARMICHAEL, D.D.S., Milwaukee, Wis.

Many varieties of artificial porcelain crowns have been devised, but little or no improvement has been made in the manner of attaching them to the root. I wish to show here a preparation of the root and a perfect fitting root attachment which when seen furnishes its own arguments, and when applied to the Davis crown gives as beautiful, strong and perfect an operation as can be accomplished.

In the application of the crown-post attachment it will be seen at once that it can be applied to a badly decayed condition of the root with equal ease and less time than other methods. The gum is not involved in the operation of making a fitting to the root, therefore the result is a crown flush with the edges of the root, and with the surrounding conditions as nature provided they should be.

The post is so shaped and rolled as to be easily adapted to the form of the root, and will permit the solder to flow thoroughly through the coil. The head of the post is so divided that the flanges may be turned down with the crimping instrument without closing the hollow of the post.

The posts are made of a soft, pliable metal that will not tarnish when heated and will stand sufficient heat to be soldered with any karat of gold solder in the market.



## ITEMS OF INTEREST

The root is prepared by beveling to the gum as shown in illustration: Counter-sink to half the depth of bur, shown in cut, and enlarge root canal for as large a post as the root will permit, leaving no under-



cuts; place platinum post in root, enlarge same to root canal and with the crimping instrument turn the end out into the counter-sink.

Place a sheet of  $\frac{1}{400}$  platinum over the end of the root, punch a three-cornered hole, and with the crimping instrument turn the platinum plate into the counter-sink, then use a Platoria post which has been moistened and dipped in powdered 22 k. solder, telescoping the first,



## ITEMS OF INTEREST

which is turned into the counter-sink, thus pinioning the platinum cap firmly in position between the crimped ends of the two posts.

The whole is then closely burnished to the end of the root or may be swedged with rubber to the form of the end of the root. If the root canal is large, a third post may be used in the same manner as the second.

Before removing, pass a small steel broach through the end of the post; this opening will permit the solder to flow more readily to the end of the post.

The entire fitting is then removed with the screw extractor. If the post and cap become separated in removing from root, stick the parts together by flowing hard wax into the posts, and while warm place upon the root to get the parts in proper position again and trim the platinum cap to the shape of the root.

Remove and place the same in the wire screen of the soldering device, place a drop of the anti-flux preparation on the screen for a bed, and pass the post through it. The cap is imbedded in same, and when heated this will hold the parts in perfect position.

Set a common pin in the post extending out far enough to be used in removing the attachment after replacing it upon the root.

Use the solder in long sticks as shown in figure, which enables you to force the flow into the posts, thus insuring a thorough filling of the post with solder.

The attachment is then placed upon the root and the edges of the platinum cap burnished to a close contact with the root.

After stiffening the post with solder, never use a mallet to drive the post except it be lightly and with an orangewood stick as a driver.

Replace the finished attachment upon the root preparatory to adjusting the crown; select a Davis crown and grind same to its position upon the root.

To prepare the Davis crown-post for this attachment cut off the post that is made for the crown at the collar of same. Form a thin platinum plate about  $1/400$  thickness to the base or counter-sunk portion of the crown.

These two parts are fitted and soldered in the usual manner, and the crown is then waxed to the attachment in its position upon the root in the mouth which obviates the necessity of taking an impression.

The wax will remain soft long enough to replace the attachment and adjust the crown. Should the wax harden before the crown is satisfactorily adjusted, touch the wax with a heated instrument; when the tooth is in position cool the wax with water and remove from root.

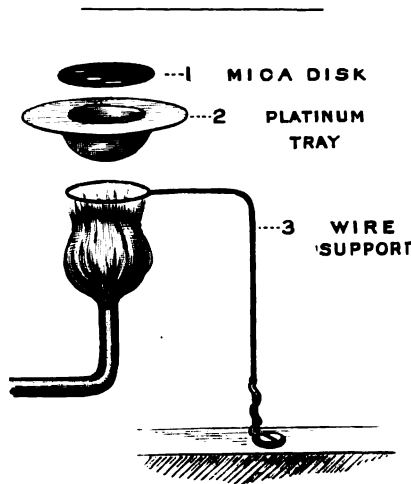


## ITEMS OF INTEREST

Place the piece of work in the soldering device as shown in figure; put a little daub of investment compound upon the bed of the soldering device and turn the post holder down upon it until the porcelain crown-post becomes embedded in same; also put a drop of investment compound over the post to protect it from the extreme heat. Do not attempt to remove the wax, but burn it out; it will act as a good flux. If there are any places you fear the solder will go, then paste it over with a little of the anti-flux.

If the crown is to be completed from an impression, the post can be dipped in a little hot wax before running the model. Hold the instrument in the Bunsen flame and use the blowpipe at the same time; with the soldering instrument in your hand you will find it an easy matter to flow the solder to any place desired.

In bridge work, complete the soldering of the crowns before taking impression.



### A Simple Device for Fusing Low Heat Porcelain.

By DR. J. ALLEN JOHNSON, Middletown, Del.

As many of our profession are located where the electric current is not available, the use of gas or gasoline for the fusing of porcelain bodies becomes a necessity. It is for the special benefit of that portion of the dental profession that I will present a method whereby the use of low fusing porcelain is simplified. In my own practice I only use the electric furnace for high fusing bodies.



Using 1/1000 matrix platinum, conform it to approximate the form of a straw hat having a conical crown. The crown diameter equal to a No. 18 disk, with a depth of  $\frac{3}{8}$  inch. A mica disk of size sufficient to cover the crown opening completes the oven part of the device. A support is made of thin iron wire and attached to work bench as shown in the illustration.

The tray should be readily removable from the support. This size of tray is large enough for any filling, and no investment need be used excepting for large contour fillings.

The mica disk excludes all gases from the blowpipe and, so far as I have observed, the results are equally as satisfactory as could be obtained with more elaborate outfits. The cost of construction is trifling, and good work may be done in less time than where the electric furnace is used.

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## Gutta-Percha Tape for the Humane Wedging of Teeth.

By R. OTTOLENGUI, M.D.S.

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As long as the wedging of teeth remains a necessity in dental practice, it will be our paramount duty to accomplish it with as little pain as possible. All dentists know that though effective, both the rubber and the wooden wedge are painful in the extreme, and very often harmful as well. Ordinary tape, or whisps of cotton, are not so painful, but neither are they very effective. The steel separator is a barbarous measure at best. A dentist might inflict it upon a patient but would never endure it himself.

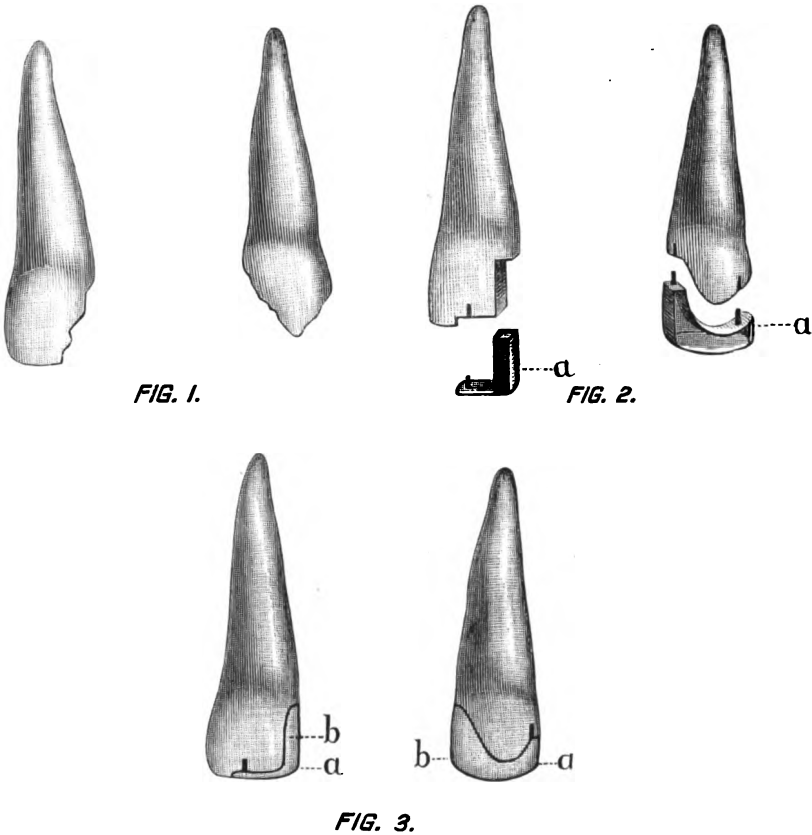
Some fifteen years ago Dr. C. Frank Bliven, of Worcester, Mass., gave me a piece of tape steeped with gutta-percha, and told me to try it for separating teeth. I did, and was sorry when it was used up, but I did not like to ask for more. After a while, however, I wrote a letter to Dr. Bliven about four pages long, and added a postscript to this effect: "I wish I had some humane tape." Needless to say the letter was but an excuse for the postscript. This little trick was repeated at intervals as often as I dared, but I have always felt like a beggar, yet continued to beg because it was in behalf of my patients. Why can not some one place this on the market?



## Combination Gold and Porcelain Inlay.

By DR. A. P. JOHNSTONE, Anderson, S. C.

A lad thirteen years of age met with an accident which fractured two of his front teeth: left central and lateral incisors. These teeth were fractured as indicated by Fig. 1.



Pulps were not exposed, neither were the teeth decayed. The question with me was how to restore the corners of these two teeth and yet not destroy nor expose the pulps. At the age of thirteen I do not consider it advisable to destroy pulps if it is possible to avoid it. In this case, had I excavated much I would either have exposed the pulps or have encroached so near them that they would have died by thermal shock.

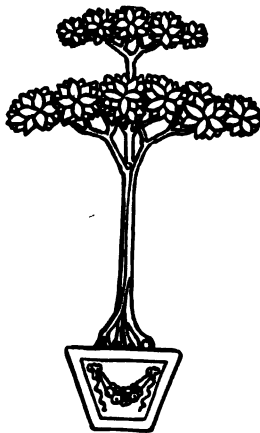


## ITEMS OF INTEREST

Porcelain tips or corners would not in my judgment and experience have withstood the masticating stress.

Solid gold inlay corners would have been strong enough, but very unsightly, and therefore to be avoided. Jacket crowns would in my judgment have been impracticable. So after giving the case considerable study, I determined to treat in the following manner. With suitable disks the walls of the teeth were ground, as shown in Fig. 2, and hollow gold inlays were made and cemented to place; then a porcelain inlay made to fit the labial opening in each gold inlay. This gold inlay is better described as a box, the lingual side of the inlay is gold and made to occlude with the lower teeth.

I was very well pleased with the operation when completed. I obtained almost the strength of a solid gold inlay and nearly the beauty of a porcelain inlay. I may add that one could use "Ascher's Cement" instead of porcelain, if this cement proves as good as promised by the manufacturers. These two teeth have been very satisfactory up to date, and from all indications will prove quite a creditable operation as to service.







## Evolution in Dental Practice.

By B. HOLLY SMITH, M.D., D.D.S., Baltimore, Md.

*Read before the New Jersey State Dental Society.*

It is hard to justly estimate the importance of the events of to-day without instituting some comparison between them and the events of yesterday. "The child is father of the man." Anything, which we regard as mature and in full fruitage now, must have developed from seeds sown in the long ago, nurtured by those who have preceded. I have not reached the reminiscent age, nor does my memory of methods of dental practice go back as far as some, but I yield to no man in my interest in, and veneration for the past. Hence I have thought it might be in a sense a fulfillment of my promise to read a paper before your association, if I should talk with you about the changes which have occurred in the methods and teaching of dentistry in the last quarter of a century.

### **Cement as a Filling Material.**

I recall at some of the clinics during my student days, lengthy discussions as to the relative merits of oxyphosphate and oxychlorid of zinc as filling materials; and it is easily remembered that neither of these materials, as then prepared, gave any promise of permanency, while it is no uncommon thing to find to-day a cement filling, which has preserved its integrity for five or six years, comparing not unfavorably with gold or amalgam in durability.

It was about this time that the advocates of the "New Departure" were holding forth from every platform and in every publication. Many of us remember the wonderful sallies of wit and eloquence, which poured torrent-like from the now silent lips of that dear old advocate, Dr. J.



## ITEMS OF INTEREST

Foster Flag. His greatness and cleverness seem all the more evident to us now, since we know the weakness of his position, and that in spite of it he usually had the audience with him. The weakness of the arguments of the New Departurists was caused chiefly by the absence of any filling material, which with ordinary care produced esthetic effect and anything like permanent repair. Who can say with the discovery of a material possessing the desired virtues how many of us will join the army of those, who taboo gold as a filling material?

May we not ask the question right here—for you to answer—"Is Ascher's Artificial Enamel such a material?" It is certainly possible to mix it so as to exactly match the shade of any tooth; and from my observation it gives greater promise of permanency than any material, which could be employed by the same methods. Certainly, Ascher's is not the last word on the subject. He himself, if not others, will probably improve upon the material now being furnished; and it requires little stretch of the imagination to see the teaching and practice of the last few years (already greatly modified by the introduction of porcelain work) fall into disuse and abandonment.

Who, that recalls the large school of skilled operators who grew up around Varney and Webb, can find in the same locality so many whose practice has not been greatly modified in recent years? It is true we still have the G. V. Black Dental Club, a body of skillful and well-trained operators; but if anything should happen to Wedelstaedt, it is dollars to doughnuts that they would disperse. The pages and reams that have been written upon "Composite cavities in the incisal region" and their preparation for gold fillings, seem to-day antiquated reading. Indeed, as a teacher, I can not help but feel foolish, when I take up this subject for treatment. I feel that I must teach the use of gold in this locality, but I am conscious that the practice has fallen into disuse, and that the rule is almost universal to show no gold in the incisal region. Even if for utilitarian reasons consent is given for some display of gold, it is more frequently gold inlay, and not gold foil, introduced piece by piece into a cavity prepared with infinite pains for its reception. We have all labored over the proper bevel of enamel walls, extension for safety and the anchorage suitable alone for cohesive gold fillings.

What is the meaning of this evolution? Have we become more esthetic? Is it because our patients demand it? Has our observation convinced us that major operations in the incisal region with cohesive gold have not proved as desirable as we had hoped? Has not ten or twelve years developed a dark line here or a chipped segment of enamel there? And then has the porcelain which we substituted given



us entirely satisfactory results? These are questions which I want you to answer. It is quite evident to me that there is a strong disposition among many operators to resort to the entire porcelain facing. Our ingenuity, our skill, has stood us in stead for a time, but here we are face to face with the fact, that to-day we are more frequently resorting to radical operations, which we formerly postponed, until the last effort had been expended in other directions. What is to be the effect upon the coming dental operator? Can you find to-day among the younger practitioners any Maynards or Cockerilles? Have not such beautiful operations as these men turned out daily with non-cohesive gold become to many of us a memory only? And now how often upon our list of clinics do we see attempted such operations as Webb or Varney did? We have instead major porcelain inlays or tips or facings displayed in infinite variety. Is this progression or retrogression, or do I misstate the facts?

It is not alone in the domain of operative dentistry that marked changes in methods are to be noted. In orthodontia the teachings of men like Case have produced a profound impression, and the rules of selection of bicuspid for extraction are no longer guides of any significance, arch expansion and restoration of contour without extraction being a more uniform practice.

Bonwill, in his advocacy of gutta-percha in cavities between the temporary molars to prevent the coming forward of the first permanent molar, struck a chord which has been played on effectively by Bogue and others, until most of us are in accord with the theory that the forward migration of the "Principal Molar" is a most prolific source of irregularity, and our efforts are employed to prevent or correct this condition.

Again, in the field of bridgework, the old-fashioned Low crown and Richmond bridge, used as a permanent fixture, has waned in popularity and in most extensive cases has given place to removable bridges with their cushions and attachments.

Gold inlays have been substituted for bands and collars. The changes in this line of practice have tended to develop a high grade of technical skill, and we are to be congratulated upon the distinct advance which they mark.

**American  
Dentistry.**

In the substitution of plastic materials and methods for gold and the skill required for its use, on the contrary, we retrograde in technique. With the passing of gold as a filling material, American



## ITEMS OF INTEREST

Dentistry will have suffered a loss of that which has heretofore done much to make it distinctive, and will have undertaken methods, which may be characterized as European. With the abandonment of our former practice must come the loss of a quality, which has been largely developed by the act of building. Construction has made the dentist resourceful. This he will lose when he ceases to construct. He will degenerate into a skillful plasterer. Possibly, his laboratory technique may improve, his skill with the blowpipe and furnace will increase, but he certainly will lose something, which we have had a pride in his possessing.

But what about the patient's standpoint? Unquestionably the patient will hail with joy the short instead of the protracted sitting; the time spent in the adjustment of an inlay rather than the much longer operation of constructing a contour filling. The patient to-day is demanding that his incisal region shall be as free from display of gold as are the patients of Dr. So and So. From what I know, the patient may cast the deciding vote in favor of inlays and plastics. Certainly we do not get on so well when we do not please them.

I notice in the list of four papers selected to be read at the Jamestown Dental Convention the title of one—"Is the Cement Filling the Filling of the Future?" and of another—"Gold Inlays." Is this significant?

If these are facts they must surely influence the teaching of dental methods, and it is time somebody said so. If we are aimlessly drifting out of skillful and useful practices, it is time a halt was called. "Come now, let us reason together," and decide these points, and stick a few pegs for guidance of those who come after us. I like occasionally to go over the boundary of my little farm, and see if the old trees, mentioned in the deed of transfer, are still there; if the stones described as placed so many feet from these trees and marking the limits of possession are in place. I also like to estimate whether the value of the enclosure has been added to or diminished. So to-day I want you to show me whether I am carrying dead wood that should be lopped off, or whether my adoption of new and more popular practices has been in the nature of a healthy growth, that will be useful in the coming years.





## The Peridental Membrane.

By DR. GEO. W. CURT, Philadelphia, Pa.

*Read before the Southern Dental Society of New Jersey, October, 1906.*

The peridental membrane is the fibro-vascular ligament or sheath surrounding the entire root of the tooth, and is the membrane by which the root is attached to the bony wall—the alveolar process—which in turn is a temporary structure of bone projected upon the maxillary bones encasing the roots of all the teeth. This latter is but temporary, and while resembling true bone is much more vascular, cancellated and less dense, having for its function that of supporting the teeth and, when the latter are lost, is soon absorbed, owing to a complete loss of its function. The peridental membrane is placed between this process and the roots of the teeth. It is a formation from the rather embryonic structure about the developing tooth, evolved from the follicular wall inside of which tooth calcification and formation go slowly on.

As the end of the process of calcification draws near, the embryonic structure, of a loose cellular nature and very vascular, undergoes a change in its morphology, the cells becoming specialized into fibrous cells, endothelial cells, nerve cells, etc., the first of which predominate, and tissue of the nature of a ligament soon develops, surrounding the now forming tooth.

With the completed deposition of dentin and complete formation of the tooth with its roots, the peridental membrane, now established as a regular functioning structure or organ, assumes its first or original duty as a tooth-forming body; and certain cells of its structure, known as osteoblasts or bone producing cells, begin the deposition of calglobulin for the formation of the last part of tooth structure to be calcified—that of the cementum or bone-covering of the roots. This cementum is a sheath of bony substance, the softest of the three calcareous structures of the tooth; the enamel the first and hardest, and most beautiful of all organic tissues; the dentin, the second, which forms the body and greater portion of the tooth, giving the tooth general form; and the cementum, the last, or sheath upon the roots and covering the dentin of these portions of the tooth, is for the specific purpose of giving attachment of the tooth to the jaw. In the deposition of the cementum and its calcification, the very cells which deposit the cement-substance, together with the fibrous cells of the pericementum, are caught in the process and are calcified with the cementum and in its substance, thus giving upon the tooth side of this membrane the strongest possible attachment to the tooth.



## ITEMS OF INTEREST

It thus becomes one of the structures of the tooth and is always a part of the tooth, coming away with it in its extraction.

### **The Peridental Membrane.**

The peridental membrane is in truth a double membrane having this strong ligamentous attachment on the tooth-side, but resembling more closely the peristeum on the side toward the alveolar process; upon this side it is, in fact, a true periosteum, giving support to the tooth and attachment to the alveolar bone and at the same time partly nourishing the alveolar bone which it covers.

From its position, the peridental membrane is liable to injury in many ways. One of its functions is to resist the strain put upon a tooth in the process of mastication, and if undue pressure or sudden force in biting upon a hard substance is made, it must result in injury to the peridental membrane, setting up inflammatory action and often causing serious disturbance in this organ.

Blows, fracture of a tooth, careless use of the teeth, abuse, etc., are some of the causes of injury to the membrane. These being traumatic, may cause only an active inflammation, from which recovery may soon take place. If, however, congestion results and degeneration of the blood so congested, and infection occurs, a suppurative and destructive inflammation follows, and in addition to excessive pain and suffering in such cases, complete loss of the membrane by abscess, and sometimes of the tooth, in consequence follows.

The pericementum is very susceptible to infection and the degenerating processes resulting therefrom in teeth affected with caries encroaching upon the tooth-pulp and where putrescence of the pulp has resulted from exposure and death of that organ. Highly infectious matter is passed or forced through the apical foramen of the root out into the apical space and into and upon the peridental membrane at the apex of the tooth. This is the usual cause of abscess. The infective inflammation attacks the membrane, and being confined as it is in its narrow space between the root of the tooth and bony process, exudations cause intense pain, excruciating in severity, and relief comes only when the exudations and infection have reached the soft tissues of the gums, the lips and the cheek.

### **Etiology of Pericemental Disease.**

The most common cause of inflammation and the degenerative processes of the pericementum is the accumulation of food particles, calculus, and other waste products about the necks of teeth, giving rise to irritation of the gingival or gum-margins, inflaming the latter, causing congestion of the gums; the result of this



congestion is a retarded circulation in the gum tissue, the degeneration of the blood and the formation of serumal deposits, the accumulation of the urates of lime and soda and the calcareous degeneration of the blood. These in turn are violent irritants to the soft tissues, which increase the inflammatory action and institute a progressive degeneration of the gums, periosteum, periodontal membrane and the alveolar process.

Blood in a state of degeneration becomes decidedly acid in reaction, is irritating and causes sensitiveness and decalcification of the tooth surfaces. Hypertrophy, hyperemia and inflammation ensue and a general degenerative and destructive action of the surrounding tissues takes place, with recession of the gums, alveolar process and the pericementum. Infection of the destroyed tissue naturally occurs, an accumulation of waste products attends the whole process and an offensive and infective purulent discharge is noticeable, which contaminates the food pabulum and unfits it for nutrition. The teeth so affected become loose from a breaking up of their attachment and sore from irritation and loss of function which attends not only the affected teeth, but others in their vicinity, and sometimes of all the teeth on this side of both jaws, and mastication by them is impossible. Further destruction of tissue surrounding the teeth results from this loss of function and systemic disorders and often derangement of the entire alimentary tract, so that a literal poisoning of the system follows in consequence of the pyorrhea. Unless decided measures are taken to correct the condition, the teeth will soon loosen and come out, or from the pain and discomfort resulting from the looseness, are from necessity extracted. And strange as the statement may seem, by far the greater number of teeth lost are lost from this insidious and progressive or rather retrograde metamorphosis consequent upon inflammation of the gums and periodontal membrane.

Diseases of the pericementum have been wisely  
classified, and by no less an authority than G. V.  
**Pericemental**  
**Disease Classified.** Black, into three varieties:

Those which have their origin at the cervix or gingiva; those which begin at the apex of the root; and those which occur in the central portion of the membrane, or some intermediate part between the apex and the cervical border of the tooth.

Nearly all the cases which have their beginning at the apex are directly due to an infection (bacteria—pyogenic organisms of the pneumococcus, streptococcus, staphylococcus and the more common variety diplococcus prevail) from the decomposing and putrescent contents of the canal of the tooth following the death of the pulp.



## ITEMS OF INTEREST

These cases result mostly from neglect. The pulp substance, together with impacted food, undergoes decomposition and becomes highly infective. This infection is confined within the canals and readily finds its way or is projected into the apical space, setting up an acute infection of the peridental membrane covering the apex of the tooth. Confinement again within this area leads to further progress of the disease and septic inflammation of the membrane continues, often throughout the whole organ, and an active and acute septic apical pericementitis is the condition. This is often miscalled alveolar abscess. There probably never is in the various phases of an abscessed tooth, any abscessed condition of the alveolar bone, but simply a boring through the alveolar wall by the abscess-sac by reason of the action of the giant cells upon the outer surface of this destroying membrane—the sac—carrying the destroyed tissue, the dead leucocytes, destroyed cellular connective tissue bone cells and gum tissue and known as pus, toward the surface upon which it is to be discharged. Beyond this, the different stages of a developing abscess would be somewhat irrelevant to our subject. We may, however, to advantage consider the morphology or morbid anatomy of the peridental membrane during the progress of the disease which has its origin at the apical end of the tooth-root. Infection from the canal finds its way into the tissues of the pericementum. Abundant exudations of a fibrinous and coagulable nature pour out into the intercellular spaces of the membrane; the tissue softens and swells about the apex, and exudations of blood cells and leucocytes take place; proliferation of the cells of its tissue ensues, and the tooth, by reason of a thickening of the pericementum, is pushed slightly from its socket. With this pathology the nerve cells of the membrane become highly sensitive—hypersensitive—and from pressure by the hyperemic vessels and the exudations, pain attends its first symptoms. With an extension of the inflammatory condition radiating from the focus of infection throughout the whole membrane, pain and pressure increase until in the more advanced stages the slightest percussion or pressure upon the tooth affected becomes unbearable.

Great destruction of cellular tissue, of soft and bony structures, and of the leucocytes takes place and its accumulation, on confinement within a developing sac wall (which is a process of demarcation from normal surrounding tissue), leads to its escape along the path of least resistance and the condition is known as abscess.

The cases which have their origin in the body or central portion of the pericementum are comparatively few and are not so important. In nearly all cases they are due to a form of infection which reaches the



membrane by way of the general circulation. Infective matter is carried directly to the vessels of this organ and a septic inflammation follows. Or by reason of injuries to the membrane by force or blows, or the too sudden strain upon it by suddenly biting upon hard substances, causes an engorgement of the vessels or even rupture, and the effusions resulting undergo a degeneration, and an infective inflammation is the consequence. Phagadenic pericementitis is induced from such causes, the process being a slow degenerative one; a microbotic action with slow degeneration of an area or of different areas of the membrane.

This has been given the name of phagadenic pericementitis, or an eating away of the membrane by a very low chronic form of inflammation. In other words, it is the slow passing away of the life of this organ.

The cases which originate at the cervix or gingival margin are more common than any of the other classes and should interest and concern the operator probably more than any branch of his work. For one reason principally they are important. The duties of the operator are mainly the conservation and preservation of the natural teeth. All of his work should tend toward this end. In proportion as he is able to preserve the natural teeth in their various relations and functions, just so in proportion is he successful or unsuccessful. Now since we have learned that more teeth by far are lost through diseased condition of the gingival and the peridental membrane, if the operator is to be successful or most successful he will give that department most attention which is most prolific in the destruction of the teeth. It has been said by our learned Dr. Talbot "that if you take care of gingivitis you will have no pyorrhea." Let me add here that the term pyorrhea is not the name of a specific disease which we find destroys so many teeth, but one of the stages or phases of an inflammatory condition which begins with hyperemia at the gingival border, and ends with total destruction of the gum and its attachment, the alveolar process and pericemental attachment and the loss of the tooth itself. Just as suppuration is a part of the phenomenon we call inflammation (as is also the earliest hyperemia) so is pyorrhea (or the flowing of pus) a phase of the inflammatory action which destroys the teeth.

Then to return to the quotation of Dr. Talbot, stop the hyperemia and you avoid the suppuration; or, as he gives it, "stop the gingivitis and you have no pyorrhea." Or to put it more simply still, stop the condition at the beginning and you have no progression. Is it not true of all things? It is the proverbial "Stitch in time."

With scarcely an exception these cases or this class of cases begin-



ning at the gingiva are the direct result of neglect. Why is it that the mouth, which should be virtually the cleanest part of our whole anatomy, is in reality the filthiest? It is so only from the fact that it is most neglected even in this present day of advanced systems of hygiene. We strain at gnats and swallow camels.

The phenomenon is as follows:—Mucous patches or accumulations upon the teeth, in various stages of decomposition and infection, irritate the gums at their margins. These become hyperemic. A gingivitis results progressive in its nature, with a continuation of the causes of its irritation. Exfoliation of gum tissue, hypertrophy, follows. Congestion of the vessels of this tissue and exudations are the result of continued irritation, which like the condition itself is progressive. With a profound congestion of the hypertrophied gums, the blood almost bursting through the surface, there naturally results a decomposition of this excess of blood, a decided acid reaction in its generation, calcareous in its nature, with the formation of the urates of lime and soda.

These and other irritating salts are deposited within and upon the gums and pericementum, Soon the loss of function adds its share to the destructive process and absorption of gum tissue, alveolar process and pericementum, or probably a wasting away of these, leaves the teeth loose, without support, and withal so irritated and painful that relief is had in their falling out or in extraction. These changes are the direct result of a lack of oral hygiene and are the usual pathological changes we might look for from such cause.

**Traumatic Cause  
of Disease.**

There are also certain traumatic causes which are apt to induce similar conditions, locally but rarely general. The common causes are use of arsenical agents for devitalization; the passage into the apical space of an irritating drug used in medication; forcing of root filling materials of various kinds through the apical foramen; pieces of root reamers or drills or broaches used carelessly in canals; drilling through the lateral aspect of a root; very rapid wedging for spacing, or tooth movement in regulating cases; ligatures or clamps injudiciously applied or retained; too heavy or excessive malleting in building up large gold fillings; or the biting of too hard substances as nuts, pieces of ice, thread and other things. Blows and falls affecting particular teeth are apt to cause acute pericementitis. The acute form arising from any of the foregoing causes is usually of short duration, depending upon the vitality of the patient and power to resist or offset this condition. Usually surgical rest of the tooth or teeth affected is indicated, with



local application of tincture of iodine as a counter-irritant or the use of the following for the same purpose:

℞ Tinct. Aconite (rad).....fl. oz. i  
 Chloroform .....fl. oz. iv  
 Menthol .....gr. xx

This has been found by the writer better than tincture of iodine. Capsicum in its various forms of preparation, hot applications of extract hamamelis have also been successfully used for this form of pericementitis.

**Treatment of Gingival  
 Pericementitis.**

The important part of this paper will be that portion which dwells upon the treatment of that class of cases which have their origin at the gingival border. Let me begin with an incipient form or almost what precedes an incipient form of gingivitis. Before the gum margin is affected there must first be an accumulation upon the tooth surface of a mucous-like accretion, which within a very short time after its accumulation, or in fact simultaneous with its accumulation, becomes infected with disease organisms. These infest the mass of accumulated mucus and soon its decomposition takes place as it lies upon the tooth-surface at the cervical margin and in contact with the gum.

This is the very first, the beginning of a phenomenon which starts with a gingivitis and ends with the loss of the tooth, wherever remedial measures are wanting. At this time the remedy will be frequent brushing and the use of an antiseptic wash. Listerin, glyco-thymolin, mild solution of zinc, sodium, or camphor phenate, or any form of the astringent and antiseptic solutions, many of which we are not all familiar with.

As the disease progresses from its being neglected, more stringent measures will be necessary to overcome it. When congestion of blood with partial decomposition, and hypertrophy of gum tissue exists, laceration for depleting the gums of the excess of blood and scaling of the tooth surfaces and careful examination of all cervical borders to discover if possible any accretion of calcareous matter beneath the gum margin, must be thoroughly done. There is usually in gingivitis a collection of greenish black calculus, circling the neck of the tooth just under the gum margin. You will be surprised to find how often this occurs. Mechanical removal is first indicated, followed by an application of Veo's remedy (which consists largely of trichloroacetic acid), or the application of the acid itself, applied with the aid of a thin, long-pointed orangewood stick and passed as far as possible under the free gum margin, even at the expense of detaching slightly the gum from



the tooth. This must be followed by the careful and vigorous brushing three times a day by the patient, whose thought and interest should be aroused to the necessity for careful and constant attention to prevent a certain progress of the disease if it is neglected.

A little farther on in the progress of this disease, we meet a condition where the gums are engorged with blood, exfoliation and hypertrophy of gum tissue is seen; they are sensitive and bleed at the gentlest brushing; the tooth surfaces are sensitive, especially close to the gum margins; the gums are full, loose and almost flabby in the interspaces, and often for a considerable distance are unattached. These loose flaps may be lifted up or away from the teeth and beneath is found a collar or ridge of calcareous deposit of considerable thickness and very hard, dark in color, and which is with considerable difficulty detached from the tooth surface, which has reached practically up to the pericementum. In other words, it has reached the cervical portion of this membrane.

A pericementitis is associated with a profound gingivitis. The effect upon the membrane is such as to produce disease of a greater part of the organ and soreness upon biting, pain upon percussion, partial looseness of the tooth or teeth in such stage, for it has spread to some extent and may now involve any number of the adjoining teeth. The treatment will be more difficult with the further progress of the disease. Pockets have begun to form beneath the gum margin, showing that it has affected much more of the pericementum, also the alveolar process, causing atrophy of these tissues, and in the spaces and depressions thus formed the debris of the mouth finds lodgment. Infection is now rampant! The disease from a dental standpoint is dangerous and malignant. Tissues and organs are being rapidly destroyed. The treatment now becomes even more radical. The destructive process must be checked. Nature can no longer keep pace with the destruction of tissue. Science and mechanical skill are brought into play and by curetting and laceration we remove all diseased tissue. The scaling of calcareous matter must be most thoroughly done. Instruments for this purpose must be so shaped that every portion and angle may be reached. The process of scaling in this stage becomes very tedious and trying. But "Eternal vigilance is the price of success." Every particle must come off and the tooth surface be thoroughly polished afterward. The deposit is of a serumal character, being without doubt a calcareous degeneration of the blood. It is a violent irritant to the soft tissues and must be removed and its further accumulation prevented. The pericementum, too, is in such a state of inflammation and degeneration that it is being rapidly destroyed. The teeth now affected become loose, long and sore, and necessarily lose their



function. All the tissues show less resistive powers and succumb to the pathological condition. We get rid of the great excess of blood in the scaling process and in place of a great quantity of degenerating blood which has lost its nutritive power and become even a source of irritation from loss of its oxygen and also its alkalinity, we have a normal quantity of new life-giving blood and the sensation is one of stimulation.

Following the scaling, astrigent and stimulating remedies are applied freely to the soft tissues, and a healthy reaction soon sets in; and when the treatment is repeated a number of times associated with proper hygienic and prophylactic measures, the results are astonishing and gratifying.

For astrigent action we use freely tinct. iodin, and also a mixture of equal parts of tinctures of aconite and iodin; solution of quercus alba (white oak bark) for the physiological action of the tannin; and the aforementioned zinc solutions. For stimulation, solutions of five per cent. carbolic acid; also a solution of equal parts gum camphor, carbolic acid, oil wintergreen and water, carefully mixed and used as a massaging solution. This last preparation is very beneficial and interesting. Camphor is a decided stimulant, a cardiac stimulant, and no doubt has similar effect upon the vessels themselves, in local application, elevating the arterial tension. Carbolic acid and gaultheria, while they are homologous, have somewhat different effects, or distinctive effects. Both are classed with the antiseptics, and, properly speaking, belong there, but we find that carbolic acid is stimulating to a considerable extent, and gaultheria, while antiseptic, acts as an obtundant and analgesic, both this and carbolic acid as well as thymol producing a paralysis of the end organs of the sensory nerves.

To get the best effects of this combination it should be accompanied with massaging of the gums for five or ten minutes at each sitting for the treatment. The results will be evident in the return of the normal color to the gums, a light rose pink, in place of red or the purple of congestion, and a feeling of stimulation, of returning vitality and strength to the tissues of the mouth and teeth. The treatment for this insidious disease must be continued with inexhaustible patience and determination to check it. The effects of successful treatment are a transformation and a revelation, are always gratifying and of incalculable value to the patient who will have retained the natural organs of mastication and a condition of health, for this reason, far better than he would otherwise enjoy; an appearance of the mouth and teeth which is inviting and attractive, instead of repulsive and offensive. The operator will have been a benefactor to the race, "having made two blades of grass grow where only one grew before," in his having recovered from loss these organs, the





well-being of which is so dear to every conscientious dentist and so necessary to the health and comfort of us all.

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## **Some Reasons Why Fillings Fail.**

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By J. V. CONZETT, D.D.S., Dubuque, Iowa.

*Read before the Second District Dental Society, May, 1906.*

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In order to have an intelligent comprehension of the subject of the failure of fillings through a recurrence of decay, we must first know something about the cause of caries of the teeth. We believe that the decay of teeth is not caused by an inherent weakness of the tooth structure, that the old idea that there are hard teeth and soft teeth is a fallacy. We believe that the cause of tooth decay is an invasion of the dental organs by organisms that have the power of disintegrating tooth structure. We also believe that these organisms begin their work of destruction by adhering to the tooth in some place that is not reached by the tooth-brush nor by the food in its excursions over the teeth in mastication, such places being the approximal surfaces of all the teeth, the gingival third of all teeth and pits and fissures on the occlusal surfaces. These places may be called areas of susceptibility. We also believe that there are certain areas upon all teeth in which primary caries never occurs. Such areas are the plane surfaces of the teeth that are kept clean by the excursion of food in mastication and are easily accessible to the tooth-brush. Such surfaces are the middle and incisal two-thirds of the labial surfaces of incisors and cuspids, the middle and occlusal two-thirds of molars and bicuspid, the cusps of molars and bicuspid and the incisal surfaces of incisors and cuspids. These places we may call the areas of immunity.

### **Extension for Prevention.**

In the vast majority of the failures that come to us through a recurrence of decay we will find that the reason for the failure is an insufficient extension of the margins of the cavity into the areas of immunity. This is the doctrine of extension for prevention. I make no apologies for bringing it into this paper; nor for giving it the first place, for I believe that it is the most important principle in the saving of teeth



from the ravages of decay. If a patient comes to us during this stage of susceptibility and we find the beginnings of caries between many or all of the téeth, and we only cut out the small beginnings of decay, not carrying the margins of our fillings out far enough to keep them clean, we have utterly failed to change the condition that has come to us for correction and may reasonably expect a recurrence of decay around those fillings, and will surely get it unless the period of susceptibility passes off.

Nature is very kind to us and many fillings that are not scientifically correct last many years, because after we have filled the teeth the period of susceptibility passes off, for which reason the teeth do not decay. But there comes a day, it may be in six months, it may be in ten years, in which there is a recurrence of susceptibility and our patient returns with secondary decay around all of these fillings and we wonder why. The reason is evident. If the margins had been sufficiently extended into the areas of immunity, then when the period of susceptibility returned, the organisms of decay would not have been able to attach themselves to the surface of the tooth and it would have been safe. The rule should be to carry the margins of the cavity gingivally so far that it will be covered by healthy gum tissue; buccally, labially and lingually so far that the margins are perfectly free from contact with the approximating tooth, and occlusally so far that it will be kept clean by mastication. If we do this and the filling is so made that it hermetically seals the cavity, we will never have a recurrence of decay.

In the discussion of a paper which I wrote upon this subject some years ago, a gentleman of prominence in the profession took issue with me upon this subject, but after some discussion he seemed to be convinced with the reasonableness of our position and said: "I remember many cases in my practice in which I simply cut out the decay upon the approximal surface of a tooth and filled it, and in a short time would find a recurrence of decay around the filling; would cut that out and refill, only to find a recurrence again, and I might repeat the operation four or five times and then would have no more trouble. I thought, heretofore, that there was no further trouble because we had arrived at a period of immunity. I now see that the reason why the decay was arrested was that by reason of the repeated cutting I had finally reached immune territory with the margins of my fillings."

I can testify to as many failures as any man in the profession through a recurrence of decay around my fillings, but in the last seven years, or since I have adopted this principle in my cavity preparation, I never expect to find a recurrence of decay around my fillings, and I am rarely disappointed.



## ITEMS OF INTEREST

### **Faulty Gold Fillings.**

Another reason why many failures come to us through recurrent caries is because the cavity has not been hermetically sealed with the filling material. We find these cases with all classes of filling materials, but to-night I shall confine myself to the discussion of those failures occurring when gold has been the material used.

During the past few years there have been many articles appearing in our journals in which the assertion has been made that it is impossible to make an impervious gold filling. I grant that the writers of those articles may not be able to do so, and if they will content themselves with the statement that they can not do it, we will have nothing further to say, but will draw the mantle of charity over their limitations. But when they say it can not be done, we must take issue with them, for we can do it. Almost every member of the Black and Wedelstaedt Clubs tried the experiment and in not one case was there a failure to so perfectly seal the cavity that red ink was not able to creep in between the margins though the immersion was continued for days. For a detailed statement of these experiments I must refer you to Dr. K. E. Carlson's paper in the *Dental Review* for May of this year.

### **Technique of Instrumentation.**

There are two reasons for a recurrence of decay under a gold filling. First, a failure to perfectly adapt the gold to the margins of the cavity. This is caused by a faulty manipulation. The lines of force in instrumentation have not been correct, the instrument has not been correctly stepped and the direction of the progress of the plugger point has been wrong. In making a perfect joint with gold, the point of the plugger must be held at an angle of about 45 degrees, with the wall of the cavity toward which the gold is being condensed, and the plugger should never be placed at or near that wall first and then stepped away toward the center of the cavity, but should always be first placed toward the cavity center and then stepped toward the wall, thus driving or flowing the gold before it, and the last blow should be the one that forces the gold snugly against the wall. The stepping of the plugger is the progression of the plugger in an orderly sequence of steps, each step being just a little less than the diameter of the plugger, thus shingling the gold and obtaining the greatest density and strength.

### **Density a Requisite.**

The second reason is because of a lack of density in the body of gold. We know that the specific gravity of cast gold is 19.2 degrees, and in proportion as we depart from that density we have a percentage of air spaces. If that percentage of air space is very great we have



a filling that is spongy in character and consequently is absorbent. We know what happens to an absorbent material in the human mouth, and if you do not think that the same thing happens to a filling of low specific gravity, just take one and rub it between your fingers and then smell your fingers, or place it over the flame of an alcohol lamp and see the mass of putrescent material that will burn out.

Dr. Black is authority for the statement that a filling of a specific gravity lower than 14 degrees will not save the tooth, and he has worked out by a vast number of experiments the force and mallets best adapted to obtain the proper degree of density, so that I shall not enter into a discussion of that subject at this time, farther than to direct you to his article in the *Dental Cosmos* for 1895 on the "Physical Characteristics of Gold," if you wish to follow up the subject.

**Hand Mallet and  
Hand Pressure.**

We use the hand mallet in the hands of a trained assistant and the mallet force is augmented by a hand pressure. We aim to employ a hand pressure of from ten to fifteen pounds and a mallet blow of about the same so that the force per blow is between 25 and 30 pounds. This of course must vary according to the position of the filling, the strength of the tooth and the condition of the peridental membrane. As in every operation there must first be a careful study of conditions and then an intelligent effort to correct the condition, and the best means to correct any condition must be employed. There are certain teeth in which a filling of 15 to 16 specific gravity will be the best to employ because the muscles of mastication are not strong, the stress upon the teeth is never great and the peridental membrane would not withstand the necessary strain of inserting a filling of high specific gravity. On the other hand, there are cases in which fillings of the very highest density are demanded. These cases are fillings upon the occlusal and approximo-occlusal surfaces of bicuspid and molars in mouths of individuals having masticatory muscles of great strength. In these cases, because of the great stress that is brought to bear upon the teeth in mastication, the peridental membrane is very strong and resistant, and the force of the mallet is not felt at all.

We believe that definite methods produce definite results, so in making our fillings we use pellets of gold of exact size, so that we know the exact quantity of gold under our plugger point at any given time, and we use a definite number of blows of the mallet upon each pellet. For example, we prepare our gold in pellets of 1-64, 1-32, 1-16, and 1-8 of a sheet, and to a 1-64 sheet pellet we give 20 blows of the mallet; a 1-32 40 blows; 1-16 80 blows, and a 1-8 pellet 160 blows of the mallet. In





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In this way we know that the density of our fillings closely approximates the results that we have obtained in the laboratory under conditions as nearly the same as possible. These results have been verified by fillings that have been made in the tooth and afterward tested for its density. It is a frequent occurrence to have a patient present with a gold filling that has failed, and find that the filling is of so low a density that it can be picked out piece by piece with an excavator, the whole filling having disintegrated. This is not because there was no cohesion of the particles of gold when the filling was made, but because, by reason of its lack of density and its great proportion of air spaces, the filling was so absorbent that moisture penetrated the interstices of the filling, breaking up the cohesion and causing the disintegration.

We occasionally find men who claim that they can make perfect fillings by hand pressure. It may be so; far be it from me to say what one man can do or can not do. We know that Dr. McKellops used a hand pressure of 36 pounds regularly in his operations, but of the thousands of men whose hand pressure power Dr. Black has examined with his manudynamometer, no one except Dr. McKellops has ever gone over 30 pounds, and very, very few have reached that. If I mistake not, no one but Dr. Black, while the average is ten or twelve. So while there may be isolated cases of ability to condense gold by hand pressure, it is certainly not safe to try it. But whatever the force used, it must be enough to so thoroughly condense the gold that it will not be porous.

### **Faulty Cavity Preparation.**

Another cause of failure is the improper internal preparation of the cavity. We frequently find fillings that have failed in cavities that have been prepared with pits, grooves and retaining points, resulting in failures of various kinds. In the cavity prepared with great, deep pits running into the angles of the tooth, we often find these pits the seat of a recurrent decay through the inability of the operator to properly fill them because of their inaccessibility to the plugger point, resulting in a deep pit with little or no filling material in it. Again these pits running between the labial and lingual enamel plates near the incisal surface of an incisor so weakens that part of the tooth that under the stress of incision the angle of the tooth breaks down. The same applies to deep grooves in any surface of the tooth. In cavities in the approximal surfaces of molars and bicuspid where the cavity has been filled without involving the occlusal surface, we find very frequently a break in the enamel on the occlusal surface overlying the filling caused by a weakening of the tooth at this point and a consequent breaking under mastication. Grooves and pits should be avoided in modern cavity prep-



aration. The ideal cavity is one that is prepared with a flat seat and parallel walls. That is, as nearly box shaped as is possible. In bicuspids and molars occlusal anchorage should be practically universal in application. The only cases in which any other preparation is permissible are in those cases where the approximating tooth is missing and perfect access can be obtained from the mesial surface.

In incisors involving the angle we find frequent failures by reason of the operator attempting to restore the contour of the tooth with a preparation that involves the boring of a pit into the remaining portion of the incisal surface, the result being either that the angle of the tooth breaks down or that the filling is forced away from the tooth by the stress put upon it. The method we use is that of incisal anchorage. A method calling for the most exact and painstaking instrumentation, but one that properly carried out insures the tooth a long life of active service.

Another very frequent cause of failure, not only in gold fillings, but in fillings of all kinds, is a failure to observe the occlusion. Occlusion is one of the most important problems that presents itself to the dentist. Dr. Brady once said to the writer: "If we had the perfect orthodontist, the perfect prosthodontist and the perfect operative dentist combined in one man, we would have the perfect occlusionist." We have been accustomed to think that it is necessary for the orthodontist and prosthodontist to study occlusion, but have overlooked the fact that it is just as important for the operative dentist to do the same.

If a filling is made in a tooth in such a way that it hermetically seals the cavity, and preserves the tooth from further decay, we feel that we have fulfilled our mission. Not so, if in filling that tooth it is not so restored that it can take its place in the arch and do its share in the work of mastication. We frequently find teeth upon whose mesial and distal surfaces there has been extensive decay, so that the tooth has lost from two to six millimeters of its mesio-distal diameter. If in the filling of this tooth space is not obtained and the mesio-distal diameter of that tooth restored, that filling is a failure, even if it saves the tooth for life. Why? Because to the extent of its lost surface it has disarranged the occlusion of the entire side upon which it is situated. Again, a failure to observe the occlusion will lead us into errors of cavity preparation and gold condensation. If the occlusion is strong, the cavity must be correspondingly deep and of flat surface in order best to resist the stress brought to bear upon it. If the occlusion is weak, or entirely wanting, it would be a great error to cut as wide or as deep as if the fillings were to withstand great stress. And then again, it is not only the normal occlusion that must be observed, but the abnormal, as



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well. This is sometimes extremely difficult to detect, and the most careful operator is liable to be caught napping. For instance, in a filling upon the mesio-incisal surface of an upper right lateral incisor, once I made an operation of which I was very proud, but when the patient returned in a few weeks with that filling so battered that it was scarcely recognizable, my pride had a great fall. In seeking for a cause for that failure, I found that the young man had a habit of grinding his teeth, and the sharp cusp of the lower right cuspid cut a beautiful deep and wide swath through my filling, entirely destroying it. I remade the filling, trimmed the cusp of the cuspid so that it could do no further damage, and have had no further trouble. I might cite instances enough of this kind to convince you that a study of the abnormal excursions of the teeth, either as a result of habit or of grinding the teeth at night, is of the utmost importance to the operative dentist.

I cannot attempt to enumerate all the causes of failure; such a task would be far too great in scope for one paper, but I wish to speak about one other far too common error that dentists commit, and that is a failure to properly restore the interproximal space. When a tooth decays upon its approximal surface the first tendency is to close up the space made by the ravages of decay, and the tooth moves forward upon its fellow, and in proportion to the extent of decay is the interproximal space usually destroyed. If the tooth is filled in this position, which is too often done, the space is either entirely or in part destroyed, the filling is flat with a large contact *surface*, instead of a contact *point*, and the poor patient goes through life eternally picking or trying to pick the food from between those teeth, until pyorrhea steps in as a result of irritation and ends the life history of that tooth. In filling any tooth we should in some way obtain sufficient space to properly contour the tooth, restore a proper contact point, and we will then have a natural interproximal space that will be a comfort to the patient, and that will, by reason of its allowing the healthy gum tissue to come up into that space and over our gingival margin, protect our filling from a recurrence of decay.

These, gentlemen, are a few of the causes which I have observed for the failures of our fillings. They are all errors of judgment, or of technique, and can all be overcome. As we study our failures and know the causes of them, we can more intelligently correct them. It is no crime to err once or twice, but it will surely border upon the realm of criminal carelessness to keep on making the same old failures with no attempt to correct them.



## Empiricism in the Practice of Dentistry.

By DR. W. H. JONES, Clinton, N. Y.

*Read before the Fifth District Dental Society.*

What is empiricism? A method or methods of practice resulting from theories, observation, experience and experiments.

What is science? Methods or systems of practice which have been generalized, systematized and verified. Thus the empirical methods of the past proven and verified by experience become the accepted scientific methods of the present.

What has empiricism given to dentistry? Practically every system of treatment and material that is of value to us in our daily practice.

Amalgam, which has saved more teeth than all other filling materials combined, was subject to the most bitter and ignorant abuse by the leading men of our profession, particularly those who practiced dentistry on paper between 1840 and 1860; men who condemned the material and all who used it, and endeavored and in a few instances succeeded in having resolutions passed by various dental societies, denouncing the use of amalgam and threatening to ostracize reputable members of the profession who advocated its use.

Even during the period between 1875 and 1885—when the New Departure Corps, of which the late Dr. S. B. Palmer was a valued member, were endeavoring to reduce and collate the various methods and formulæ, and by serious and exhaustive clinical experiment reduce the same to a system, they were hailed by the Gold Bugs as quacks and charlatans, although now their findings, teachings, formulæ and methods are generally accepted as proven and verified methods of practice. The graduates of the Philadelphia Dental College and the practiced and thoughtful men of the East generally accord to the late Dr. J. Foster Flagg the honor due him for his writings and brilliant efforts in giving to the profession a series of formulæ which have never as yet been improved upon, although of late years they have been slightly modified.

### **Pulp Mummification.**

Pulp mummification is, or was, also an empirical method of treating freshly devitalized pulps which an experience of more than twelve years has proven to be of great value to the profession and which has saved, for years of usefulness, thousands of teeth which would otherwise have been lost. So that now even the members of our profession who *always* fill every root to the *apex*,



openly advocate the use of mummyfying paste—before the introduction of the root canal filling—just to be sure.

I very seldom attempt to drill out and fill out the roots of the bicuspid and molars, but devitalize, open up the pulp chamber, then open the mouth of the root canals with Dr. J. Leon Williams triangular reamers, wipe out the same with perhydrol ten per cent., then with a solution, absolute alcohol 1 oz., mercury bichloride 1 gr., and fill the mouths of the canals and pulp chamber with mummyfying paste. The Soderburg formulæ with aristol or iodoform is used and the tooth sealed with the filling the case may require.

The various preparations containing formaldehyde are also of great value in the treatment of putrescent pulps and abscessed teeth, either with blind or open sacs, and after an experience of about six years, I take off my hat to solidified formaldehyde, properly used, and right here let me state that too much sealed in a tooth will create more trouble than any drug with which I am familiar. The secret of success is to use too little, rather than too much.

I will briefly refer to three different conditions in which the remedy may be used with surprising and pleasing results. I am citing actual cases taken from practice.

The first condition, an upper left lateral—the

**Cases from Practice.** pulp died under a heavy gold filling; opened up  
**Case I.** the very tender tooth, washed out with tepid water,  
wiped out the pulp chamber with a pellet of cotton moistened with perhydrol ten per cent., dried out, took a small piece of formaldehyde, smaller than a pin's head, rolled a few strands of cotton around the same so that it could be easily carried to place and sealed with temporary stopping. Sealed up a sore, aching and tender tooth and sent the patient away with an appointment a week in the future. When the patient presented, the tooth was normal to concussion, was opened up, treated and filled and patient discharged. Have treated many teeth of this type—two sittings—with invariable success.

The second condition, lower left sixth year

**Case II.** molar—dead tooth, peridentitis or blind abscess;  
cleaned and partly prepared cavity, opened up pulp chamber, washed out with tepid water and wiped out with perhydrol ten per cent.—dried the chamber and placed therein a small pellet of formaldehyde rolled up in a few strands of cotton, sealed the cavity with temporary stopping. At the next sitting found the tooth in an apparently normal condition, pulp chamber and root sweet; washed them with perhydrol ten per cent., followed by absolute alcohol and bichlorid and



filled with formapara cement. (Formula for oxpara or formapara cement.—Tricresol, 3; formalin, 1; glycerin, 1—liquid. Zinc oxid, 2; thymol pulv., 1—powder.) Of course I drilled out and enlarged the roots as best I could, using Beuel rock drills. I never use broaches. Completed the filling and discharged the patient.

**Case III.** —ulcerated teeth so-called—jaw swelled—patient

lived about four miles out in the country; opened up the cavities and pulp chambers and the pus gushed from each: washed out with tepid water and wiped out with peroxide, dried and placed in each a small piece of formaldehyde as previously described; filled the cavities with base plate gutta-percha, as the patient stated that he did not know when he could come again. Six months later the patient reported; stated that the swelling soon subsided; I treated and filled the teeth. When we consider that under the accepted scientific methods of a few years past such teeth were treated sometimes for weeks and even months, we can thank empiricism for what she has done in this direction, which is fast becoming recognized as a scientific method of treatment. And let me again warn all who have not tried the method to use too little rather than too much, as formaldehyde in excess will act as a violent irritant and seems to have a cauterizing effect on the tissues.

**Pressure  
Anesthesia.**

In using pressure anesthesia for the painless extirpation of pulps when indicated, I use a method which may not be new, yet I have never seen it published. When the tooth is prepared and the cavity rendered aseptic, I take a P. & D. pellet of cocain  $1\frac{1}{2}$  and adrenalin 1-600, roll a few shreds of cotton around same, moisten with local solution, place over the exposure and then instead of using rubber, fill the tooth with temporary stopping. Then apply pressure with a warm instrument toward the point of exposure. I have frequently succeeded with the stopping after I had failed with the rubber.

During the past eight years many teeth have been saved for in-different patients, and many desirable patients have been added to our clientage by the following empirical treatment, patients who presented with teeth for extraction. The teeth had ached and the patients did not believe or did not know that any aching tooth should be saved, and the average practitioner comes in contact with many apparently intelligent people who hold this opinion until enlightened: people who at first will not spend the time or money to save their teeth. The suggestion is made that the tooth should be saved and can be saved for a nominal fee. Usually the condition is an exposed pulp, and pressure anesthesia is used, the



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bulbous portion of the pulp removed, chamber washed out with perhydrol ten per cent., and the pulp chamber filled with mummyfying paste under pressure. The tooth is filled permanently and the pleased patient sent home rejoicing.

### **Volasem.**

In cases of extraction under local anesthesia, empiricism again helps out. About six years ago I read a paper before the Fifth District Society upon the value of adrenalin chlorid as an antidote to the depressing action of cocain, and while it is now an accepted remedy and generally used in cases of shock and heart failure, in cases of extensive extraction, volasem is now used with extreme satisfaction, particularly in the difficult extraction of lower molars and wisdom teeth. The preparation is said to be composed of fluid extract violet, fluid extract strophanthus, fluid extract calabar bean or physostigmine (physostigmine is the active principle of calabar bean). The violet is evidently used to mask the extremely bitter taste and somewhat unpleasant odor of the strophanthin and physostigmine. Strophanthin is one of the most powerful of the heart stimulants and has much the same action as adrenalin, i. e., stimulates the heart and slows the pulse.

The physostigmine is also a heart stimulant and slows the pulse, at the same time acting as a cerebral depressant. Dr. G. Lenox Curtis, a former member of this society, first brought the preparation to the attention of the profession at a Union Dental Meeting held at Richmond in 1900, and to-day uses it in his practice daily. Dr. Curtis uses a saturated solution of cocain in nearly all operations, preceded by from 5 to 20 drops of volasem. For an ordinary operation 30 drops of a saturated solution is used, which means that ordinarily 10 to 15 grains of cocain is exhibited. He says, "Ten drops of volasem is usually sufficient to prevent any untoward cocain symptoms, but should they arise a dose of 5 to 10 drops is given."

In large operations Dr. Curtis has used as much as an ounce of saturated solution, safeguarded with continuous small doses of volasem.

Dr. Curtis states that he has often seen very severe toxic symptoms where volasem had not been given corrected in a very short time by its administration, and apparently dying patients restored by the same means in a few minutes.

While we in our profession seldom use more than a one per cent. solution of cocain, and seldom exhibit in extensive extractions more than a grain or grain and a half of the drug, let me state that I am perfectly satisfied that many of the cases reported as cocain poisoning are simply cases of acute nervous hysteria, and having recognized that condition



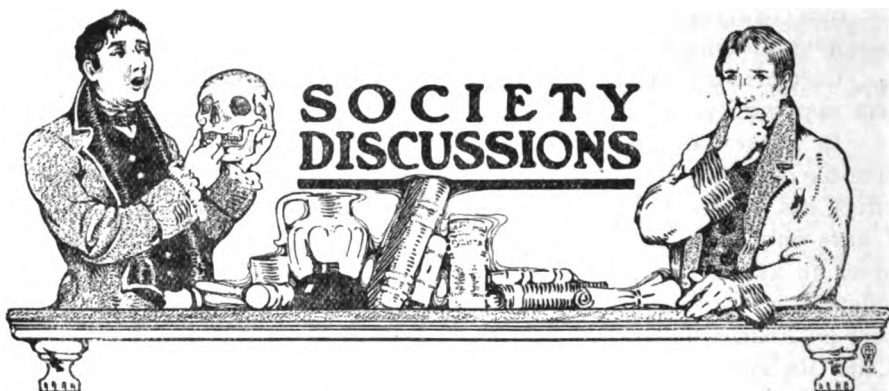
for over five years I have not been troubled or worried over cocain poisoning, although the symptoms all point in that direction.

Cocain is a cerebral excitant and gives a nervous patient an excellent opportunity to annoy the busy dentist.

In volasem we have a preparation which given in a little water before the operation, assuring the patient that it will prevent an unpleasant effect, has a powerful mental as well as physiological action. Now while I have only taken up a few of the many valuable aids empiricism has given to us, let us trust that the future may bring us many new and valuable appliances, methods and theories as have been given us in the past by Fouchard, Hunter, Townsend, Flagg, Bonwill, Barnum, Wells, Land, Richmond, Perry Younger Angle, Kingsley, Miller, Curtis, Jackson, and all the other original thinkers in our ranks.







## **New Jersey State Dental Society, Thirty-seventh Annual Meeting.**

### **Discussion of Dr. Kemple's Paper.**

**Dr. R. Ottolengui,  
New York City.**

I had hoped, Mr. President, that you would call upon some one far more competent than I am to discuss this very excellent paper, and what I shall have to say will be very brief.

In the main, practically in its entirety, I agree, but I take issue with the essayist when he speaks of nasal obstruction producing a narrowing of the upper jaw. I do not believe that is a correct statement. I am ready to concede that any such obstruction, and consequent mouth breathing, may produce a narrow upper arch, but it produces it by keeping it narrow, by preventing development; it does not narrow the upper jaw. In the normal enlargement of the jaw there should be a widening apart of the cuspids. If that does not occur, the lower arch or mandible is held in its position at that period of life, because of the locking of the cuspids—the upper cuspids locking the lower cuspids; the stress on the lateral sides of the upper jaw prevents the enlargement of the arch in that direction and so you have a narrow upper jaw. But neither of these causes prevent the continued growth of the unerupted teeth, and as they grow downward toward their proper relations they eventually erupt externally of the temporary teeth that are in place, and by that time there has been an eruption of the upper incisors very nearly where they should be, but apparently much beyond where they should be, because the whole mandible is undeveloped; and that lack of development is in part due to extreme locking, especially by the cuspids of the upper jaw and also by the overbite of the temporary molars of the upper. That produces what we call distal occlusion.



## SOCIETY DISCUSSIONS

In a somewhat similar condition, where the overbite is not great enough to cause this locking, and thereby prevent the normal development of the mandible, it may produce another condition of affairs and that is that the lack of development across the cuspid region allows, later in life, the eruption of the cuspids externally to the arch, the pressure of the lips having forced the centrals and laterals, as they erupted, somewhat lingually of their normal development, and the result is that you have the four incisors pitching lingually, your bicuspids also more or less lingual and the cuspids erupting sometimes entirely outside the arch. This particular deformity varies, from a lack of space for the cuspids, to absolutely no space at all. The correction is simply a so-called widening of the upper jaw and proper placing of the teeth.

If that is true, and if that is recognized, how much simpler it is, as Dr. Kemple has suggested, to widen the lower jaw at the time when the lack of development is noted, widening in such a manner that the teeth must react through their occlusal plane on the upper cuspids, to force the upper cuspids out, and you affect that upper bone to such an extent that you get exactly the development of it which would be normal, and having established a normal size of the upper arch the teeth develop in a normal relation.

That, I think, is the gist of the paper to-night, to point out that these cases should be studied, practically, before they occur, and that irregularities, when we come to know them thoroughly, will be treated before the appearance of the permanent teeth, and while they are still in the bones. If that can be done the whole problem will be solved, because the teeth which we will be obliged to retain then, will only be the temporary teeth, and all the little mistakes of over-widening or under-widening will amount to nothing, because they are to be lost and having, in the later development, increased the nasal space, having taken away the nasal obstruction and so restored this body to its proper functions through nutrition, when the permanent teeth come in the child will have an orderly set of teeth.

The portion of Dr. Kemple's paper which I  
**Dr. M. I. Schamberg,** heard, impressed me with the fact that inter-dependence of facial development with the development of  
**New York.** the normal arch can not be too strongly impressed upon those who are working in these respective fields. In other words, the rhinologist and the laryngologist must appreciate the dependence of the normal development of the teeth upon the relation to the development of the nasal chamber. This must be impressed upon the mind of every one who has ever seen a case of ankylosis of the jaw, showing the complete lack of development of the mandible with a pronounced receding



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chin, one which gives the face an appearance which permits of an immediate diagnosis as soon as the patient enters the office. So any practitioner, dental or medical, who has ever observed the mouth conditions in a patient suffering from adenoids must recognize the co-existence of the deformity.

Many of you who were present at the meeting of the First District Society in New York City, when Drs. Brown and Brophy had a rather interesting discussion upon the method of treating the deformity that befalls children from heredity in the form of cleft palates, must have been impressed with the importance of the etiological factors in the trouble. Each of these gentlemen was adopting slightly different methods to bring about the same end, but they both realized that the failure of the closure of the cleft was largely due to a forcing apart of the two lateral processes in the embryo, and they both aimed in their treatment to re-establish that normal relation. I speak of that because when the etiological factor is solved we will be well on the way of curing the condition.

I see many cases daily where the relation of the nose to the mouth—the development of the remainder of the face—is largely influenced by conditions within the mouth, and I do not believe that the limited arch spaces that are frequently noted, due to contraction of the bone, are influenced only by lack of bony development, but are due also to a failure to use the parts. In other words, when a patient breathes through the mouth the nasal mucous membrane becomes thickened, the arch, as Dr. Kemple has said, is raised. You usually find in these patients a very high arch and an unnecessarily long, soft palate, one which tends to make the speech more inarticulate, and improved mouth conditions in these cases, while they may not exert a direct influence upon the bony development of the nose, certainly induce nasal breathing, and nasal breathing re-establishes a normal condition of the nasal mucous membrane. Any of you who may have had operations performed upon the nose, and had cocaine placed in the nose, can readily realize the immense difference when the mucous membrane is contracted by the use of cocaine as compared with the congested membrane prior to the application of the cocaine. It is a pronounced relief; in fact, public speakers when they are troubled with acute coryza and are about to deliver a lecture will procure relief from the rhinologist by having him spray the nose with cocaine which frees the nasal passage temporarily and makes breathing much easier.

So I believe the development of the nose, both the bony parts and the soft tissues, is largely influenced by the treatment Dr. Kemple advises in connection with orthodontic methods.



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One more point, and that is in reference to the irregularities curing themselves. That was the idea many people held until recent years—that many of the irregularities of children's teeth will take care of themselves. There is no more mistaken layman's theory than that, and unfortunately it penetrated into the dental profession for a while. Malocclusion is to be regarded very much as any other disease. Disease seldom stands still; it either progresses toward a cure or gets worse, and I am equally sure that any irregularity of the teeth tends to get greatly worse rather than to readjust itself. It would be a mere matter of chance if the tooth did come to be regular after there was a pronounced deformity. Of course, during the eruption of children's teeth the alignment is often poorer in the beginning than when the jaws are full sized, but they are conditions which are not recognized as decided deformities.

I am a dentist and not an orthodontist. I recognize there is a wide difference between the two. I have reached a point, however, in my study of orthodontia to know when a case is presented, whether it belongs to me or to the specialist, and I have found a good deal of satisfaction in sending cases to some one who I thought could do better for the patient than I could.

To me, the most impressive point in the paper is the great change that has taken place within comparatively few years in the treatment of this subject.

I quite agree with the essayist's suggestion as to beginning early and I regard that as a very important point. Quite a number of cases which I have met, and some of them almost beyond remedy, no doubt began with the eruption of the first permanent teeth a little bit out of line and pushing the opposing teeth still further out of position. In that way I have no doubt a number of cases of mandibular protrusion have been developed, and that very little attention at the proper time, in infancy, would have corrected it, and in a number of cases in my own experience I have succeeded, I believe, in preventing what would have been a very serious case of malocclusion by beginning at the proper time.

It impresses me that this specialty within a specialty is opening a very wide field for the oncoming men, more so than for those who, like myself, have become settled in certain lines of practice.

I appreciate the paper very much indeed, not only for what it says but also for what it suggests; I consider it a very valuable essay and you will doubtless regard it as more valuable still when you come to read it more carefully in the proceedings and digest it and see more fully what it is intended to convey.



## ITEMS OF INTEREST

**Dr. Joseph Head,  
Philadelphia.**

I was very much impressed by Dr. Kemple's paper; I consider it covers a subject that cannot be given too much attention.

When, in looking at the works of nature, we see the stars, and observe the planets whirling through space, we are appalled and our intellect fails because we cannot in any way understand it.

When, as in a case like this, the problem comes down to a position, in its simplicity, that our minds can grasp, we even then are still more appalled to find that in the plain, ordinary, everyday, mechanical operations Nature shows a master mind and a grasp of the situation which, if we as mechanics had to do the same thing under anything like similar conditions, would make us throw up our hands in despair.

For instance, here we have a little child with the baby teeth in position up to the age of four or five years; inside that jaw there are above the baby teeth, men's teeth, to be slipped down as these baby tooth roots are absorbed, and to be put in their proper position. Why the difficulty of excavating a root or of exploring a lower root canal is child's play compared with this. When we see the wonderful plan it makes us full of reverence for the master mind that can accomplish such a thing in such a way. Just as we know that where a railroad track is being elevated and still kept in operation, if one part of it is put out of place the whole road is thrown into confusion, so if any of this procedure is interfered with, irregularities take place. For instance, the child's teeth to-day are in position and there is an adenoid, or third tonsil, which fills up the opening between the nose and the mouth so that proper breathing is impossible. One of the things which tends unquestionably to the development of the nose is the passage of air through it; when we breathe in the muscles of the nose tend to pull the tissues apart, and when we breathe out air pressure is exerted all through the nose which tends to push the plastic bone out, and not only that, but exerts air pressure in the antrum at other parts, so that we can easily see that if a child's teeth are kept in the natural arch so that the second teeth can come normally there never will be that kind of mouth we so often hear of as a mouth that is too full of teeth.

**Dr. Gillette,  
New York.**

Unfortunately I arrived only in time to hear the concluding paragraph of the paper, but from that and what I have gathered from the discussion,

I desire to express my satisfaction with the doctrine of taking care of these cases very early in life. It seems to me that is the only satisfactory solution that we can look forward to.

The closing paragraph of the paper touches on a subject in which



I have a particular interest at this time and I would like to ask Dr. Kemple if he can give me any information on this point: In case there has been arrested development resulting in a narrow arch, persisting up to adult years of from twenty to twenty-five years of age, what may we expect in the way of development of the allied boney parts in case the arch is then widened?

I desire to thank Dr. Kemple for his paper; he has taught us much that we did not know before, and has gone to the root of the question, and it strikes me as very fitting at this time that this subject should be brought out in the clear, concise way in which Dr. Kemple has presented it to-night.

I do not feel at all capable of discussing the paper, and there is only one point I feel like talking on at all, and that is on the subject of mastication—chewing. That is a matter which is brought to our attention every day. People constantly ask the question. "Why is it the teeth of to-day are in such a condition that they are decaying so rapidly?" I tell my patients invariably that the fault with American teeth is the lack of chewing. If we would use food which required more mastication we would necessarily have better teeth. If the teeth were used as the Lord intended them to be, and as Dr. Kemple says the savages and semi-savages and the semi-civilized people use their teeth, then there would be very much less work for the dentist; we would have better developed jaws, the teeth would erupt in their proper positions and be better teeth.

Some people seem to think that to masticate is vulgar. A young lady in my office recently was criticizing her father for his habit of masticating vigorously, but I told her that was the secret of his good teeth—his teeth are like ivory, while hers are like cheese!

Dr. Ottolengui spoke of the contracted arch; the essayist stated that mouth breathing would cause its contraction, and that has been my feeling; but Dr. Ottolengui says he does not believe it; that he thinks it simply retards the spreading of the arch. I believe that Dr. Kemple is right. I have seen cases where the arch was round and apparently perfect, and after an adenoid condition had existed for some time the arch became elongated and narrow.

**Dr. Ottolengui.**

At what age, Doctor?

**Dr. Watkins.**

Five to eight and ten. So that the shape of the arch is completely changed from the mouth breathing, and I feel that too much stress can not be put upon that point of operating for adenoids to prevent mouth breathing.



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**Dr. C. W. Valentine,**  
**Englewood, N. J.** I gather that adenoids necessitate mouth breathing. If mouth breathing could be prevented would the adenoids disappear without surgical operation—for instance, by having the nurse or patient hold the chin and make the child breathe through the nose?

**Dr. Ottolengui.** In reply to Dr. Watkins I desire to say I made a statement that in my belief the narrow arch results from mouth breathing—not because mouth breathing reduces the width of the arch, but because it prevents development of the arch. Dr. Watkins disbelieves that because he has seen one or more cases in which a rounded arch became an elongated one. That is not any proof unless you measured your rounded arch across the molar regions and then measured your elongated arch and found it was narrower across those regions. I have admitted—and I claim—that the incisor region will grow to its normal position, and perhaps even to an abnormally prominent position; an arch of that kind will naturally be totally different in shape, and, in proportion to its length, will be a narrow arch; but it will not literally be a narrower arch than it was before; it will have the same width across, but will be longer. Dr. Kemple says not. I have had one case in particular under observation which I have been watching since the child was two years of age; in that case the surgeon has declined to remove the adenoids; the child is now four and a half years old, and I have seen an elongation of that upper arch coming on, and an apparently narrowing of this arch. But there is no difference in the width across the molars. One sees these cases even up to ten and eleven years, with the temporary molars still in position. I believe that in the majority of these cases the molars are little if any further apart than they were when the child was four years old, but the development anteriorly has made the jaw much longer and, there being the same width, you call it narrow. I do not think it is actually any narrower, I think it is simply a lack of development.

**Dr. Wilbur M. Dally,**  
**New York.** We have heard to-night a paper of vast interest: it is unfortunate there are so few papers of this character presented before dental societies.

About four years ago I read a paper on a kindred subject, and at that time I went to the Academy of Medicine and made a careful review of the literature appertaining to malocclusion, or irregularity of the deciduous teeth, and the effect of this irregularity upon the bones of the face.

Dr. Kemple has brought out in his paper this evening many points of great interest. One that I call your attention to particularly is that



as early as two years of age you will often find irregularity in the deciduous teeth. If you stop to think of the development of that period of life you will recall that the bony structure of the maxilla and also of the mandible is very slight, as compared with that of the alveolar process.

Another point is this—the relation of the alveolar process to the maxillary bone; they develop separately and distinctly from each other. One, however, has an effect upon the other, and whereas the bone does not affect the alveolar process, the alveolar process has some effect in the development of the bone, and the great mistake is made by so many of diagnosing this condition by mere casual observation.

At a certain point in the alveolar process these teeth develop, and if the developmental landmarks, as given by the position of the deciduous teeth, are not observed you will probably pass over them and have decided irregularity of the permanent teeth.

Dr. Varney Barnes has made a number of measurements of the interstitial spaces, as Dr. Kemple has called them—although these have been termed the inter-proximal spaces by Dr. Black—and has ascertained the inter-proximal spaces found between the deciduous teeth in the incisor regions, that when development has taken place properly, the width of the tooth plus the space will give the width of the incoming tooth.

The inter-proximal spaces have not been touched upon in the discussion of this paper, but the subject is of such great value that I have ventured to refer to it.

**Dr. Kemple.** The discussion brought out by the paper has been gratifying.

I will not attempt to reply in detail to each one that has spoken, and instead of taking them in order, will begin with the last speaker.

Dr. Daily has referred to the measurements made by Dr. Varney Barnes of Cleveland. I would take exception to the acceptance of any definite measurement of teeth or arches to establish an absolutely accurate method by which to work, because of the fact that not only do the jaws vary, but the size of the teeth vary in the same mouth to such an extent that very often if you placed those teeth in their normal relation, you would not have perfect occlusion. I would say the same with regard to the measurements that Dr. Hawley has made in his effort to establish an arch as a criterion; he found that the size of the teeth varied considerably—so much so, I believe, that he found the arch he has given us is an approximation, and not an accurate measurement, of what it should be.

As to Dr. Valentine's question as to the adenoids atrophying if the



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child was compelled to breathe through the nose: I think that is a question which it is just as impossible to answer as it would be to compel the child to breathe through the nose. Nose breathing might be compelled for a small fraction of the twenty-four hours, but the child would breathe through the mouth during the greater part of the time. Perhaps in cases where the adenoids were not developed to a great extent it might be possible.

Dr. Watkins spoke of the great importance of mastication; the point lies in the fact that mastication acts as a stimulant by inducing an increased flow of blood to the parts and consequently increased nourishment. We all know from the treatment that is in operation in various sanitariums for tuberculosis of forced feeding, that compelling the patient to take an increased amount of nourishment—more nourishment than he utilizes in his daily work—will cause the patient to increase in weight. Exactly the same thing takes place in the jaws, when they are used for mastication; an increased amount of nutrition is carried to the jaws.

If I understood Dr. Gillette's question properly, he asked what development might be expected from treatment as late in life as from twenty to twenty-five years of age. I would feel very uncertain indeed about the development that would follow at that time of life, especially in expanding the upper arch, although a gentleman told me in Boston a short time ago that he had a patient of the age of twenty-four who had been up until that time a confirmed mouth breather, and after treating this patient for malocclusion—I do not know just what type of malocclusion existed—the patient breathed through the nose. But I have never had experience with patients of that age.

Dr. Ottolengui spoke of the narrowing of the upper arch. I believe a great many statements have been made, particularly in orthodontia, that have been statements of ideas rather than of facts. Thus far there has not been opportunity for sufficient observation along these lines to enable one to speak positively as to whether the arch becomes more narrow or whether it simply remains stationary. But we know that the slightest pressure from the muscles will bring about a change in very young bones, and we also know that the mouth is opened partly through the action of the buccinator muscles, which form a part of the mouth, and in contracting there is a tendency to draw in the rami of the jaw; at the same time, with the mouth open, it would cause a dragging or a slight tension of the masseter muscles working on the diagrammatic arch, and that arch in the young child extends laterally from the maxillary bone



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proper, perhaps nearly three-fourths of an inch; that would practically act as a lever in the alveolar arch.

That is only a theory with me; I have not made sufficient examinations of arches to know positively what change does take place, and that can only be learned by actual measurements of the arch at regular intervals from infancy up to manhood.

On motion, a vote of thanks was tendered to Dr. Kemple for his very instructive paper.

On motion, adjourned until Wednesday, July 18, 1907, at ten a. m.







## **Second District Dental Society.**

**Special Meeting, May, 1906.**

### **Discussion of Dr. Konzett's Paper.**

**Dr. Fossume.** We have been doing a little work along these lines in New York City, and I can only endorse and corroborate what Dr. Konzett has told you.

Since we adopted these methods, we have reduced the time required for such operations, the results are more satisfactory and the patient is less troubled by the hand pressure than by the automatic mallet. The ease with which the enamel is cleaved and the cavity prepared when scientific principles are applied is quite astonishing, and when we compare the old methods with those suggested by the essayist, it seems strange that we have not adopted the new ways sooner.

A difficulty is sometimes found in undermining the dentin, but I have learned that a very small bur revolving quickly, especially if it is a new bur, performs the operation so rapidly that the pain is very slight.

There are innumerable factors which go to create failures or success. The essayist says that the matter has gotten down to such a scientific basis that by the application of given sized pellets and a given number of blows for each character of pellet used, definite results can be obtained in filling. But these are not the only factors that enter into a successful filling. There is the factor of personal equation, the factor of carelessness on the part of the operator, and that perhaps is one of the main considerations, as for instance where the plugger breaks through the rubber dam, and little things of that kind.

Consider the preparation of a filling in the interproximal space; it is not the habit of many to cleanse the tooth next to the one being filled, yet there may be plaques adhering to these surfaces which will be carried into the gold by the plugger point if we are not very careful.

Some years ago I wrote a paper along similar lines, which I termed "Minutiae; The Little Things in the Filling of Teeth." I did not give such scientific definitions as Dr. Konzett has, but we live to learn, and since Dr. Black's method has been adduced, we have profited by it. We have our ideas in the East as to extension for prevention; we believe it to be good practice in some instances; but in the cases the essayist mentioned, where he said he thought it good policy to use gold of greatest specific gravity, I desire to say that I think in that character of cases we need not extend for prevention, to the extent that the essayist seems to think should be done in all cases. In that character of teeth I do not



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think we are warranted in carrying the extension so far, while in the class of teeth where the specific gravity of the gold should not be so great, it would be policy to cut further. In many cases, however, there is a limit. Probably what would best prevent caries in some teeth, would be covering it with a gold cap; although I do not think that is the proper practice, still the only thing perhaps that would prevent that character of teeth from decaying would be some form of covering absolutely preventing secretions from coming in contact with the tooth structure at all.

I would like to ask the essayist, if in the preparation of a cavity, he always extends it through fissures to the mesial approximal space, as he did this afternoon; even though the fissure is practically perfect?

**Dr. Morris.**

**Dr. Ketcham.**

I would like to know whether Dr. Conzett uses non-cohesive gold.

**Dr. Royland.**

I would like to know if, in that sort of a preparation, the buccal and lingual walls and intervening dentin are on a straight plane throughout.

**Dr. Conzett.**

No, the dentin curves slightly.

**Dr. Gould.**

I would like to ask Dr. Conzett whether the preparation of the cavity he showed this afternoon ever affects the vitality of the tooth.

**Dr. Provost.**

In talking with some gentlemen to-night, the question was suggested as to whether in cutting the teeth in this way, a labial or buccal cusp might not split off.

**Dr. Ash.**

I would like to ask whether it is the practice in the preparation of cavities by this method, to cut away all enamel which is not supported by dentin; whether that is the invariable rule or whether sometimes it may be supported by cement.

**Dr. Conzett,**

In the first place, I have to thank you for handling me so kindly.

Dr. Leroy spoke of the personal equation entering into the successful manipulation of gold, and of cavity preparation. That is entirely correct, just as it is true in any work, whether it be the filling of teeth, the painting of a picture, or anything else. The personal equation must enter very largely into all our operations. We may instill these scientific principles into the mind of one man and get absolutely no results, while with another man we may procure the most beautiful fillings. One of the very best men I know on theory, is absolutely the poorest operator of my acquaintance. A man must have mechanical ability,



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ingenuity and digital dexterity to succeed practically. I never insist that a man must do a thing in a certain way. If he can make a successful filling in his own way, I do not ask him to adopt mine. But I believe there are certain basic principles and that a man of ordinary ability, by following these, will get better results than otherwise. I believe that any man, by using the methods laid down by Dr. Black and his followers will obtain better results than he had before.

Dr. Leroy also spoke of carelessness. Unquestionably that is a factor which enters very largely into all failures. A man may have the fundamental principles so thoroughly instilled into his mind that he knows them from A to Z, and yet from carelessness will destroy the good results he might otherwise obtain. He also spoke of the cleansing of the teeth before operating. This is one of the fundamental principles laid down by Dr. Black and others. Before adjusting the rubber dam, I make it a practice to cleanse the teeth thoroughly, and after adjusting the rubber dam to go over the surface of the teeth in view with alcohol, so as to produce a thoroughly aseptic condition and remove all material so that the rubber dam will not slip off, and often it is almost impossible to take off the rubber dam without tearing it.

Dr. Evans\* misunderstood me. He said I made a distinction in operating on certain teeth, and he spoke about certain teeth decaying very rapidly while others would not, and evidently thought I attributed that to something inherent in the tooth structure itself. If I conveyed such an impression I desire to correct it, because I do not believe there is any appreciable difference in the tooth structure. I believe—and Dr. Black has quite thoroughly demonstrated that fact—that the tooth structure is practically the same. With some there are teeth in which decay occurs more rapidly than in others, and we believe that is because of the environment in which the tooth has been placed. I believe, through the researches of Miller, Black and Williams of London, that teeth, even though of defective enamel, may be in immune environment for years and not decay; but just as soon as a period of susceptibility arrives, these teeth will decay and we have no assurance that a person who is immune to-day will be so to-morrow, or two, or three, or five years hence; and we know there are periods of immunity and of susceptibility. Nor is it because teeth have changed their characteristics, but because there has been a change in environment. The doctor says it might not be necessary to cut teeth which are hard and not decaying, so far as the others. Perhaps that is true; but we have no assurance that the condition of immunity will continue. Therefore I suppose the only safe way is to cut

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\*Dr. Evans's remarks not supplied by the stenographer.—Ed.



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our cavities far enough to carry them out into the territory of reasonable immunity.

Dr. Frazer asked about the operation of our gold. And Dr. Ketcham asked about the use of non-cohesive gold.

We use both non-cohesive gold and cohesive gold. The non-cohesive, as you all know, is one of the very best preparations we can possibly use for the preservation of tooth structure, because of its adaptability to the walls of the cavity. In preparing our non-cohesive foils we use it in quarters and halves of the full sheets; the full sheets are rarely used. We take a half sheet of gold and fold it upon itself in a ribbon shape until it approximates the width of the cylinder we desire to use. Then it is rolled up on a hairpin or hatpin or similar article and we use these cylinders in the gingival thirds of molars and bicuspid and our quarter sheet cylinders in the buccal angle and the lingual gingival angle and press the half sheet cylinder in between the two cylinders which we have already placed there. (Dr. Conzett here exhibited photographs illustrating the method referred to.)

Dr. Ketcham asked me if we used the non-cohesive foil in the incisal anchorage. No; never. Because that must depend upon our gingival anchorage. (Dr. Conzett illustrated his meaning by a drawing upon the blackboard.) In making a filling of this kind we must depend entirely upon our cohesive foil.

Another gentleman asked me if I always extended the cavity through the fissure as I did this afternoon. In similar cases to those shown this afternoon I do. Where the fissure extends clear through the occlusal surface of the tooth, I extend the cavity until I get clean, smooth enamel. In cases where there is an arch of enamel running over I do not always cut through it, if I can get sufficient anchorage without doing so.

Another place where we use non-cohesive gold is in cavities in the occlusal surface of bicuspid and molars.

I want to emphasize the point that these cylinders must always be placed on end (Dr. Conzett illustrated this method by reference to plaster casts).

After the soft foil has been inserted we commence on the occlusal surface with our cohesive foil and begin building forward from the occlusal surface and then from the soft foil in the gingival third until it effectually anchors the soft foil in place.

Some gentleman asked if the cavity preparation affects the vitality of the teeth.

Not any more so than any other cavity preparation. I will not say a pulp has never died under a filling of this kind, but the percentage is not



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as great as it was under the old method. If we study our conditions, our occlusions and the strength of the teeth, we can always overcome that, because if there is not sufficient strength we can build over it, which we should do if there is any doubt in our mind at all as to the ability of the cusp to carry the load that is to be put upon it.

Dr. Ash asked if it is the practice to cut away all the enamel, or to support with cement. Yes, it is the practice, and I should say the invariable practice to cut away all the enamel, where there is any trace left, for otherwise it will surely break down, for as you know, the enamel has very little, if any strength. Here, again, comes in the study of conditions, but it is a matter of judgment. There are places where we can build up the enamel in various ways and preserve it so that it will retain its lifelike appearance. But it is impossible to lay down any hard and fast rules and say what we must or must not, or can or can not, do, in any given case. We must learn to study conditions as they come to us and then, to the best of our ability and judgment, use the best method we can for the salvation of teeth, together with what skill we may possess—with the aid of scientific methods—and by conscientiously carrying out the rules we will attain results which we never have been able to reach before. I know that has been my experience, and it will be yours if you will conscientiously carry out this system which has been laid down for us by Dr. Black.

On motion a vote of thanks was extended to the essayist.







The American Society of Orthodontists held their seventh annual meeting in Detroit during the first week of October. Judged by the quality and nature of the papers and discussions this was one of the most remarkable of the meetings of the year, and one of the best in the history of the society.

As compared with a purely dental meeting this one was quite unique. A dental society having not over fifty men in attendance would scarcely attract attention. But this gathering of a small but devoted band of specialists was important, because of the fact that every man present was capable of intelligently discussing the topics presented by the essayists. The papers were all above the average, but three in particular will attract world wide attention when published.

The President, Dr. H. A. Pullen, made an earnest plea for a more extensive use of the pure metals in making regulating appliances. He pointed out that in gold, with its alloys, and irridio-platinum, the orthodontist may accomplish all his purposes, and he raised a number of questions which he hoped would be more

**Noble Metals  
Recommended for  
Appliances.**



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scientifically studied, to the end that true answers may be found within a short time. The almost universal use of German silver is prevalent, in his opinion, partly from habit, and partly because it is more convenient to purchase fixtures ready made, and because until very recently no dealer seemed willing to make appliances other than of German silver. These ready-made bands and arches of course look well when first bought, being handsomely gold plated. But in the mouth this plating frequently disappears very rapidly, and considerable discoloration, if not actual foulness, often ensues. Teeth in contact with German silver often show metallic stains which it is quite difficult to remove. Dr. Pullen referred to the oft-repeated claim that German silver acts germicidally in the mouth, but this he thought might prove a fertile field for scientific investigation. At all events the nobler metals being apparently cleaner and at the same time effective, it becomes the paramount duty of the specialist to finally determine by scientific experimentation what metals should best be used in orthodontic work.

### **Resection of the Mandible.**

Dr. Max Ballin, an eminent surgeon of Detroit, read a paper entitled "The Osteo-plastic Resection of the Mandible," and presented a patient upon whom he had operated with marked success. From time to time it has been recommended that in cases of apparent overgrowth of the mandible a proper occlusion of the teeth, coupled with an improvement in the physiognomy, might be attained by recourse to surgery, the mandible being separated at two points, sections removed, and the bones rejoined. Dr. Ballin has succeeded in doing this, and deserves much credit for his wonderful technique which appears to be original. The patient had lost his molars, and this prompted Dr. Ballin to attempt to operate without exposing his wounds to the possible infection of the oral fluids. In this he was so successful that bony reunion occurred in three weeks without untoward symptoms. He made incisions from without, inward, along the internal angle of the bone, thus placing them practically out of sight. Reaching the body of the bone he dissected away the periosteum and bared the bone, which was then resected without at all passing through the gum tissues into the oral cavity. The ends of the bones were sutured, and within three days the man was out of bed, and in three weeks left the hospital. The result from a surgical

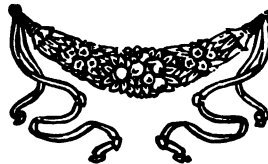




point of view was marvelously fine, and the doctor is to be praised for his extraordinary technique. At the same time it is an operation which should be rarely needed or attempted.

**The Blood  
Supply to  
the Teeth.**

Perhaps the most remarkable paper was that presented by Dr. I. Norman Broomell. The source of the blood supply to the teeth is of such great interest to all dental practitioners that it is extraordinary that it has not been determined long ago. True, the pictures in the text-books agree with peculiar unanimity, considering the fact that the illustrations seem to be entirely conjectural. In all, minute branches of main arteries are traced directly into the apices of the teeth. But many practitioners, basing their views on clinical experience, have for years doubted the theoretical picturings, and it has now been shown by Dr. Broomell that this apical blood supply, at least is most doubtful. Dr. Broomell has not completed his work, but so far as he has gone his results contradict any such hypothesis. His dissections, photographs and lantern slides created a genuine enthusiasm, his technique being as splendid as can be conceived. Up to date his research has covered embryonic teeth, teeth with crowns calcified, and teeth with crowns and the major parts of their roots completed. The investigation has included lower animals as well as the human jaws, and in no instance has Dr. Broomell found any branches from the main arteries entering the tooth roots. The Society of Orthodontists is to be congratulated upon having first received this magnificent paper, and also upon the fact that Dr. Broomell has promised them another paper next year, giving his further work upon fully formed teeth.







### **New York's New Cocain Law.**

The Drug Trade Section of the New York Board of Trade and Transportation has sent to its members copies of the new law with relation to the sale of cocain, which was signed by the Governor on June 5. It is known as Chapter 424, Laws of 1907, and took effect September 1, 1907. The following is the complete text of the law:

#### **Chapter 424. Laws of 1907.**

##### **AN ACT**

To amend the penal code, in relation to the sale of certain drugs.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

Section 1. The penal code is hereby amended by inserting therein a new section to be section four hundred and five-a thereof and to read as follows:

§ 405-a. It shall be unlawful for any person to sell, furnish or dispose of alkaloid cocain or its salts, or alpha or beta eucain or their salts or any admixture of cocain or eucain, except upon the written prescription of a duly registered physician, which prescription shall be retained by the person who dispenses the same, shall be filled but once and of which no copy shall be taken by any person; except, however, that such alkaloid cocain or its salts, and alpha or beta eucain or their salts may lawfully be sold at wholesale upon the written order of a licensed pharmacist or licensed druggist, duly registered practicing physician, licensed veterinarian or licensed dentist provided that the wholesale dealer shall affix or cause to be affixed to the bottle, box, vessel or package containing the article sold, and upon the outside wrapper of the package as originally put up, a label distinctly displaying the name and quantity of cocain or its salts, alpha or beta eucain or their salts, sold, and the word "poison"



## ITEMS OF INTEREST

with the name and place of business of the seller, all printed in red ink; and provided also that the wholesale dealer shall before delivering any of the articles make or cause to be made in a book kept for the purpose an entry of the sale thereof stating the date of sale, the quantity, name and form in which sold, the name and address of the purchaser, and the name of the person by whom the entry is made; and the said book shall be always open for inspection by the proper authorities and shall be preserved for at least five years after the date of the last entry made therein. Any person who violates any of the provisions of this section shall be guilty of a felony punishable by imprisonment of not more than one year or a fine of not more than one thousand dollars, or both.

§ 2. This act shall take effect September first, nineteen hundred and seven.

### **Dentists' Prescriptions for Cocain.**

Attention has been called previously in these columns to the provision of the cocain law which went into effect in New York State last September, which practically prohibits sales of cocain or preparations of cocain between wholesale druggists, unless the wholesale druggist, who is the purchaser, is at the same time a registered pharmacist, physician, dentist or veterinarian. A new point in the law which is receiving the attention of dispensing pharmacists in New York is that which apparently debars pharmacists from filling prescriptions for cocain that have been written by dentists. The law does this by exclusion, for the text reads: "It shall be unlawful for any person to sell, furnish or dispose of alkaloid cocain or its salts, or alpha or beta eucain or their salts, or any admixture of cocain or eucain, except upon a written prescription of a duly registered physician, which prescription shall be retained by the person who dispenses the same, shall be filled but once, and of which no copy shall be taken by any person." The only exception to the sale or disposal of cocain preparations provides for the sale of such at wholesale upon the written order of a licensed pharmacist or licensed druggist, registered practicing physician, licensed veterinarian or licensed dentist. So the curious anomaly is presented of retail druggists being restrained from selling cocain preparations to licensed dentists and veterinarians or for their patients, while these are permitted to obtain it in any quantity from wholesalers on a written order. We do not believe that the provisions against the dispensing of cocain by retail pharmacists on prescriptions of dentists and veterinarians and preventing sales of cocain between wholesalers were drafted intentionally and of malice prepense, but that these provisions, or, more exactly, omissions, were the result of careless drafting, and we are confident that they will be remedied by amendments to the law as soon as the Legislature is again in session.—*American Druggist.*





### **Expression of Regret.**

**Dr. W. D. Miller.**

WHEREAS, Our honored and beloved fellow-member, Dr. Willoughby Dayton Miller, has been suddenly removed by death, the officers and Executive Committee of the American Dental Society of Europe desire immediately to express to his afflicted family and to the dental profession the sympathy and the deep sense of personal bereavement which every member of our Society feels in this irremedial loss.

K. A. DAVENPORT, President.

J. W. GALE, Secretary.

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### **Hart • Littig • Brewster.**

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At a joint meeting of the Interstate Dental Fraternities of New York and New Jersey, held in New York July 12, 1907, the following preamble and resolution were passed:

WHEREAS, It has pleased our Heavenly Father to call our friends, co-workers, and founders of this Fraternity, Dr. John I. Hart, Dr. J. Bond Littig, and Dr. Richard C. Brewster, from their earthly labors, which they so faithfully and conscientiously performed, to their eternal reward; and

WHEREAS, They who were so faithful in friendship, generous in deeds, equitable and just to all men, kind and sympathetic in their natures, were wise counsellors, whose high sense of honor and consistency at all times characterized their professional and private lives; therefore be it

*Resolved*, That we, the members of the Interstate Dental Fraternities of New York and New Jersey, in session assembled, do record our deep sense of the loss which the dental profession and this Fraternity in particular has sustained; and be it further





*Resolved*, That we extend our heartfelt sympathy and sorrow to the bereaved families, and that these resolutions be spread upon our minutes and published in the dental journals, and that a copy be sent to the bereaved families.

F. C. WALKER, Vice-President for New Yoek.  
T. A. QUINLAN, Secretary for New York.  
S. C. G. WATKINS, Vice-President for New Jersey.  
F. G. GREGORY, Secretary for New Jersey.







# SOCIETY ANNOUNCEMENTS

## State Society Meetings.

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Alumni Society of the Angle School of Orthodontia, St. Louis, Mo., December 12, 13, 14.

Arizona Board of Dental Examiners, Phoenix, Ariz., November 11, 12, 13.

Illinois Board of Dental Examiners, Chicago, Ill., November 4.

Institute of Dental Pedagogics, New Orleans, La., December 31, January 1, 2.

Nebraska State Dental Board, Lincoln, Neb., November 18, 19, 20.

New Jersey State Board of Registration and Examination in Dentistry, Trenton, N. J., December 9.

Ohio State Board of Dental Examiners, Columbus, Ohio, November 26, 27, 28.

Ohio State Dental Society, Columbus, Ohio, December 3, 4, 5.

Texas State Board of Dental Examiners, Waco, Texas, December 16.

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## Institute of Dental Pedagogics.

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The next Annual Meeting of the Institute of Dental Pedagogics will convene in New Orleans, La., December 31, 1907, and January 1 and 2, 1908.

An exceptionally good program has been arranged by the executive committee. All dental college teachers are respectfully requested to attend. Full announcement of the completed program will appear in subsequent issues of this journal.

B. E. LISCHER, Secretary-Treasurer.





## **Ohio State Dental Society.**

The Forty-Second Annual Meeting of the Ohio State Dental Society will be held in the assembly rooms of the Great Southern Hotel, Columbus, December 3, 4, and 5, 1907.

An excellent program of papers, clinics and exhibits has been provided.

The educational features of such a gathering can be appreciated only by those who are in regular attendance at this and other leading societies, and every ethical dentist in the state should come and, if not already a member, should join.

Should you wish to stop at the Great Southern Hotel it would be well to have your rooms reserved in advance, as there are never accommodations for all; however, other first-class hotels are in the immediate vicinity.

Mark the dates off now, and come on the first day and remain through the entire session.

F. R. CHAPMAN, Secretary.

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## **National Association of Dental Examiners, 1907-1908.**

The following is a list of the officers of the National Association of Dental Examiners elected at their last annual meeting in Minneapolis: President, Frank O. Hetrick, D.D.S., Ottawa, Ka.; vice-president for the South, F. A. Shotwell, D.D.S., Rogersville, Tenn.; vice-president for the East, T. R. Henshaw, D.D.S., Middletown, Ind.; vice-president for the West, J. J. Wright, D.D.S., Milwaukee, Wis.; secretary and treasurer, Charles A. Meeker, D.D.S., 29 Fulton Street, Newark, N. J.

Committee on Colleges.—J. G. Reid, D.D.S., chairman, Trude Building, Chicago, Ill.; L. L. Barber, D.D.S., Toledo, Ohio; G. S. Todd, D.D.S., Lake City, Minn.

Joint Conference Committee.—J. F. Downsley, D.D.S., chairman, 175 Tremont Street, Boston, Mass.; R. D. McIntosh, D.D.S., Monet, Mo.; J. A. Hall, D.D.S., Collinsville, Ala.

Joint Tabulating Committee.—Alphonso Irwin, D.D.S., chairman, 425 Cooper Street, Camden, N. J.; J. F. Downsley, D.D.S., Boston, Mass.; J. G. Reid, D.D.S., Chicago, Ill.

Joint Committee on National Council of the N. A. D. E. and N. A. D. F.—H. C. Brown, D.D.S., 185 East State Street, Columbus, Ohio,



## ITEMS OF INTEREST

chairman N. A. D. E.; Geo. E. Mitchell, D.D., Haverhill, Mass.; H. W. Campbell, D.D.S., Suffolk, Va.; J. D. Patterson, D.D.S., Keith Building, Kansas City, Mo., chairman N. A. D. F.; H. W. Morgan, D.D.S., Nashville, Tenn.; Wilbur F. Litch, D.D.S., Philadelphia, Pa.

Dental Corporations Committee.—J. R. Wallace, D.D.S., chairman, "The Masonic," Louisville, Ky.; Charles A. Meeker, D.D.S., Newark, N. J.; C. P. Pruyn, D.D.S., Chicago, Ill.

Credentials and Membership Committee.—C. H. Oakman, D.D.S., chairman, 29 to 31 State Street, Detroit, Mich.; J. H. Wallace, D.D.S., Omaha, Neb.; W. G. Mason, D.D.S., Tampa, Fla.

Resolutions Committee.—T. J. Barrett, D.D.S., chairman, Worcester, Mass.; W. H. Collins, D.D.S., Vermillion, S. D.; W. C. Dalrymple, D.D.S., Ogden, Utah.

Publication Committee.—J. E. Chase, D.D.S., chairman, Ocala, Fla.; C. Stanley Smith, D.D.S., Cincinnati, Ohio; H. B. Purl, D.D.S., Kirksville, Mo.

Committee for Promoting a System of Uniform Examinations.—T. F. Turner, D.D.S., chairman, 721 Olive Street, St. Louis, Mo.; E. D. Brower, D.D.S., Lemars, Iowa; A. L. LeGro, D.D.S., Three Rivers, Mich.

Committee on Contracts and Accommodations.—Charles A. Meeker, D.D.S., chairman, 29 Fulton Street, Newark, N. J.

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### New Jersey State Dental Society.

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List of officers of the New Jersey State Dental Society elected at their July meeting: Walter Woolsey, D.D.S., president, Elizabeth, N. J.; Frank G. Gregory, D.D.S., vice-president, Newark, N. J.; Charles A. Meeker, D.D.S., secretary, 29 Fulton Street, Newark, N. J.; Dr. Henry A. Hull, treasurer, New Brunswick, N. J.

Executive Committee.—Frank G. Gregory, D.D.S., chairman, 7 West Park Street, Newark, N. J.; Harvey Iredell, D.D.S., New Brunswick, N. J.; Charles H. Dilts, D.D.S., Trenton, N. J.; W. A. Jaquette, D.D.S., Salem, N. J.; Wallace F. Naylor, D.D.S., Somerville, N. J.

Membership Committee.—Dr. Oscar Adelberg, Elizabeth, N. J.; William G. Gelston, D.D.S., Camden, N. J.; Henry Fowler, D.D.S.; Harrison, N. J.; William T. Thompson, D.D.S., Asbury Park, N. J.; Thomas F. Martin, D.D.S., Rahway, N. J.





### **Alumni Society of the Angle School of Orthodontia.**

The Second Annual Meeting of the Alumni Society of the Angle School of Orthodontia will occur in St. Louis, December 12, 13, and 14.

MARTIN DEWEY, Secretary.

Argyle Bldg., St. Louis, Mo.

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### **Texas State Board of Dental Examiners.**

The Texas State Board of Dental Examiners will hold the next semi-annual examination at Waco, Texas, December 16, 1907.

For further information, address,

DR. BUSH JONES, Secretary.

Dallas, Texas.

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### **Nebraska State Dental Board.**

The next meeting of the Nebraska State Dental Board will be held at the State House, in Lincoln, Neb., November 18, 19, and 20, 1907. All applications for examination must be in the hands of the secretary at least five days before this date. For any further information address the secretary.

C. L. LADD,

Secretary Nebraska State Dental Board.

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### **Ohio State Board of Dental Examiners.**

The regular semi-annual meeting of the Board of Dental Examiners of the State of Ohio, will be held in Columbus, November 26, 27, and 28, 1907.

Only graduates are eligible to examination.

Application, accompanied by fee, \$20.00, should be filed with the secretary by November 16th. For further information address,

H. C. BROWN, Secretary.

185 East State Street, Columbus, Ohio.





## **New Jersey State Board of Registration and Examination in Dentistry.**

The New Jersey State Board of Registration and Examination in Dentistry will hold their semi-annual examination beginning Monday, December 9th, and continue through the 10th and 11th. Practical operating and practical prosthetic work will begin 8 A. M. Monday, December 9th. Photograph and preliminary credentials must accompany the application. Meeting held in the State House, Trenton, N. J.

For full information address the secretary, Charles A. Meeker, D.D.S., 29 Fulton Street, Newark, N. J.

## **Iowa State Board of Dental Examiners.**

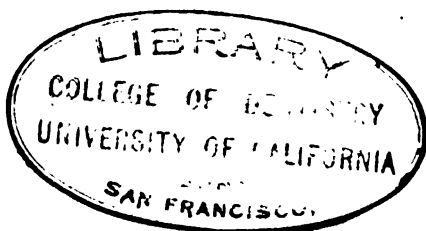
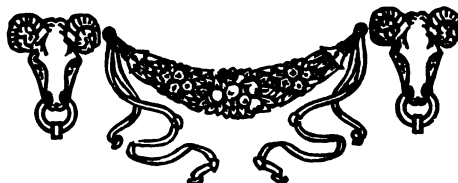
The Iowa State Board of Dental Examiners will hold its next meeting for examination at Iowa City, December 2, 3, 4, 1907.

Written and practical examination will be required.

For further information, address

EL. D. BROWER, D.D.S., Secretary.

Le Mars, Iowa.







## **The Principles and Practice of Filling Teeth with Porcelain.\***

By Dr. JOHN Q. BYRAM, Indianapolis, Ind.

### **I. The Formation of Matrices for Porcelain Inlays.**

Before describing the methods of forming matrices, let us consider the materials that are used for this purpose. Such a consideration shows that gold, platinum and platinous gold are used for the construction of matrices, and that each material has properties characteristic of it. In formulating a table for comparison of these three metals, the numbers used for such comparison refer to this particular table and not to the general table used in the comparison of metals.

**Gold.** Fusing point 2016° F. Malleability, first rank; tenacity, third rank; pliability, first rank; ease of annealing, first rank.

**Platinum.** Fusing point above 3500° F. Malleability, third rank; tenacity, first rank; pliability, third rank, and ease of annealing, third rank.

**Platinous Gold.** (One to three per cent): Fusing point, approximately from 2030° to 2040° F. Malleability, second rank; tenacity, second rank; pliability, second rank; and ease of annealing, equal to that of gold.

\*Copyright 1907, by Consolidated Dental Manufacturing Co.



## ITEMS OF INTEREST

Gold and platinous gold can only be used to advantage with low fusing, while platinum can be used with high or low fusing porcelains. Matrices can be constructed of platinous gold as thin as  $3/10000$  of an inch, while pure gold thinner than  $4/10000$  of an inch can not be manipulated to good advantage. They may be constructed of platinum foil as thin as  $1/2000$  of an inch, but the best results are generally obtained by the use of foil  $1/1000$  of an inch in thickness.

There are cases in which pure gold as thin as  $4/10000$  of an inch may be used for the construction of a matrix, for small cavities of free accessibility, but of this thickness, gold is so pliable that the danger of

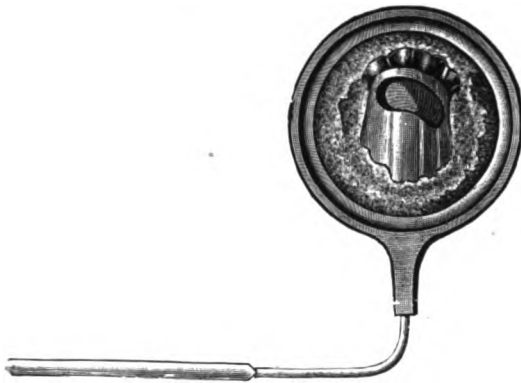


FIG. 64.

distortion precludes its use in cavities where the matrix can not be easily removed. Since the pliability of metals decreases, and their tenacity increases in direct ratio to their thickness, the gauge of the metal used should be determined largely by the conditions presented by the cavity in hand.

Of the metals used for matrices, the author believes platinum to be the best for the construction of matrices of large cavities. While gold and platinous gold are more pliable than platinum and are apparently more easily manipulated, the tendency of a matrix made of them to distortion, either in the process of withdrawal or during the process of fusing the porcelain, seems to be somewhat of a disadvantage. Some operators invest matrices, made of thin foil, to prevent the porcelain from changing their shape (Fig. 64), but the time consumed in investing the matrix and in cooling it after each baking will be greater in total than the additional time consumed for the construction of a platinum matrix. Platinous gold has more elasticity than pure gold, but is more liable to tear during the process of swaging or burnishing.



**Annealing  
Matrix Metals.**

Gold and platinous gold are annealed by the heat of a gas or alcohol flame. But extreme care must be exercised to prevent these metals from partially fusing during this process. The metals should be passed through the flame several times and should never be held in an intensely hot flame for any considerable length of time, because of the comparatively low temperature at which they fuse. Platinum should be annealed in the furnace or in an oxyhydrogen flame. The method of annealing it in a gas or alcohol flame is to be condemned; for the comparatively low heat obtained from these flames seems to render the metal slightly brittle. It should be heated in the furnace to about 2200° F. for two or three minutes, by which process it becomes more pliable. There is no particular advantage in annealing the matrix several times during the process of construction. The foil should be made pliable previous to beginning the formation of the matrix, and there is no need of further annealing unless the foil loses its pliability during the construction of the matrix.

**Methods  
of Constructing  
Matrices.**

There are three general methods of constructing matrices for cavities.

- (1) Burnishing directly into the cavity.
- (2) Swaging into a model of the cavity.
- (3) Swaging over an impression of the cavity.

The method of burnishing the foil directly into the cavity seems to be the most popular, and the author believes it to be the best for the construction of matrices for simple approximal and most approximo-incisal cavities. If the foil is burnished directly into the cavity, it gives a sharper matrix than can be made by swaging directly into the models of many cavities. Matrices can be removed from simple approximal cavities where there is a moderate amount of space, with no danger of distortion, while an impression of the cavity could not be removed without additional space or sacrifice of tooth structure. A matrix burnished into a cavity usually covers more of the surface of the tooth than one swaged into a model, thereby aiding the operator when applying the porcelain, to obtain better representation of tooth contour.

There have been a number of special instruments for burnishing matrices placed on the market. It has been the author's experience, however, that many of them are useless and that a large supply of burnishers is more of a hindrance than a help in this work. He has found that a pair of special inlay matrix pliers (Fig. 65), four ball burnishers (Fig. 66), one blade burnisher (Fig. 67), one special marginal burnisher (Fig.





# ITEMS OF INTEREST

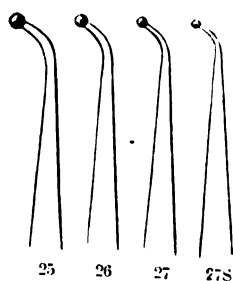


FIG. 66.



FIG. 67.



FIG. 65.



FIG. 68.

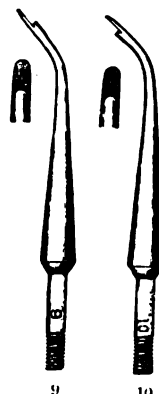


FIG. 69.

68), and two gingival marginal burnishers (Fig. 69) meet the requirements in a satisfactory manner. The efficiency of the gingival marginal burnishers is increased by grinding the lip of the instrument until it is about one-third its original length.



**Technique  
of Burnishing  
Matrices.**

The technique of burnishing matrices is dependent upon the material used and the thickness of this material. If thin gold is used for simple approximal and approximo-incisal cavities, the metal should be surrounded by goldbeater's skin or china silk, and forced into the cavity with pellets of spunk or cotton (Fig. 70). After the foil has been forced to the seat and to the axial walls of the cavity it is then turned over the margins by wiping the metal toward the margins with a pledget of cotton and by pressing toward the walls of the cavity. After removing the goldbeater's skin or china silk the matrix is again inserted into the cavity and is then filled with paraffin and wax, which is forced gently toward the walls of the cavity with large burnishers. If the matrix is for an approximal cavity a strip of rubber dam is then placed over it with the wax in position and used as a means of swaging the foil to the margins (Fig. 71). After this the matrix is removed and the wax absorbed from it by placing a roll of cotton over the wax and heating it to its melting point. The cotton absorbs the molten wax and leaves a clean matrix.

When matrices are constructed of gold, platinous gold or platinum foil 1/2000 of an inch or heavier, most of the burnishing should be done directly on the metal with proper burnishers (Figs. 66 to 69). A piece of foil large enough to be held between the thumb and forefinger without interfering with the burnishing is placed over the cavity (Fig. 72). It is pressed into the cavity with a pledget of cotton; then with a large ball burnisher the metal is gently and gradually forced into the cavity, when smaller burnishers are used to gradually conform the foil to the seat. A strip of heavy rubber dam is then placed over the matrix, which is filled with tightly rolled cotton, and with direct pressure, the foil is turned over the margins of the cavity and the adjacent surfaces of the tooth, to prevent wrinkling of the matrix at the margins (Fig. 71). The matrix is now withdrawn from the cavity and the surplus metal is trimmed so that its edges will rest uniformly on a flat surface. It is now replaced and held firmly against the walls of the tooth with the thumb and forefinger and reburnished with a series of ball burnishers beginning with the largest, then continuing with smaller ones until the matrix conforms to all walls of the cavity and its margins (Fig. 73). The margins of the matrix are now burnished with the special marginal burnisher (Figs. 68 and 74) until the foil is closely conformed to the cavity margins. If the cavity extend to or beneath the gum the foil may be made to overlap and conform to the gingival margin by the use of a pair of special gingival marginal burnishers (Figs. 69 and 75). The matrix





FIGS. 70 AND 71.





FIGS. 72 AND 73.





FIGS. 74 AND 75.





FIGS. 76 AND 77.



## ITEMS OF INTEREST

should now be annealed, then placed into the cavity and filled with gum camphor or hard wax. If gum camphor is used, a piece of gum that will fill the cavity is placed into the matrix and is used as a means of swaging it to the walls and margins of the cavity with the assistance of blade burnishers. A piece of heavy tape is then placed over the camphor and pulled directly toward the margins of the cavity (Fig. 76). This swages the metal under direct and uniform pressure and forces the matrix to conform to the margins of the cavity at all points. If hard wax is used in place of camphor it should be made slightly plastic, then immersed in cold water to destroy its adhesiveness. It should be manipulated between the thumb and fingers, which should have been previously



FIG. 78.

immersed in cold water. A small ball of wax is then placed into the matrix and forced into place with a blade burnisher. The tape should be moistened before placing it over the wax for the final swaging. The wax has an advantage over camphor in that it will adhere better to the walls of the matrix, thereby assisting in the removal of many matrices. Either camphor or wax may be burned from the matrix, leaving no residue.

The following additional details in the technique of forming matrices for larger approximo-incisal cavities with irregular marginal outlines should be considered. In case the margins present one or more reverse curves, the matrix should be burnished differently from the method used in those cavities in which the marginal outlines form a straight line. After the foil is irregularly burnished to the cavity it should be conformed to the margins of the step with the shank of a small ball burnisher (Fig. 77). The matrix is then filled with hard wax and the foil turned over the margins of the cavity in the tooth with rubber dam. The force should



be directed in such manner that uniform pressure is made on the foil to prevent its overlapping at the margins. The foil should then be forced into the reverse curves with the marginal burnisher. The matrix should now be trimmed so that its edges will rest uniformly on a flat surface. It is then annealed and adjusted to the cavity for final swaging. This is done by filling the matrix flush to the margins with hard wax (Fig. 78)



FIG. 79.

and swaging with tape. Care should be exercised to exert uniform pressure on the margins of the matrix during the process of swaging (Fig. 79).

It is probable that the seat of the matrix will be torn during the process of burnishing (Fig. 80 A), but such tears in the seat of a matrix do not affect its efficiency. Sometimes, moreover, the matrix may tear at some point along the labial or lingual margins (Fig. 80 B). If this tear is small, it need be considered of no consequence. Large perforations in the region of the seat and small ones along the margins of the matrices for high fusing porcelain may be bridged before applying the porcelain by painting the cavity side of the matrix with a thick solution



## ITEMS OF INTEREST

of shellac (Fig. 81 A), which prevents porcelain from flowing through the perforations, and burns from the matrix without leaving a residue. It is advisable to coat a perforation at the margin before each application of the porcelain in order to insure a smooth margin of porcelain after the matrix has been removed.

Because of the irregular formation of some approximo-incisal, and the inaccessibility of many approximo-occlusal cavities, the method of first swaging the foil into a model of the cavity is particularly indicated. Although many porcelain workers construct all inlays by swaging matrices

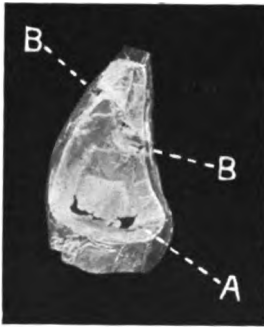


FIG. 80.

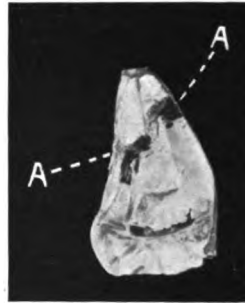


FIG. 81.

into models of cavities, the author believes it is possible to construct more accurately fitting inlays for simple approximal and most of the approximo-incisal cavities by burnishing the foil directly into the cavity or by swaging first into the model and then burnishing the foil into the cavity. However, he believes more accurately fitting matrices may be constructed for large approximo-occlusal cavities by relying wholly on swaging into models because of the difficulty with which matrices are burnished into such cavities in the mouth. Still, he admits that it is almost impossible for him to construct absolutely accurate models unless they are made under pressure, and he believes that, with few exceptions, the models not constructed under pressure, as made by most dentists, are not absolute positives of the cavities which they represent.

### Impression Methods.

There are many materials used for taking impressions of cavities. Those which have received the most consideration are: Dental lac, modeling compound, Klewe & Company's impression material, gutta percha and the oxyphosphate cements. Dental lac and



modeling compound are used probably more than all of the other materials. They have the advantage in that they are more easily manipulated and require less time for taking the impression. Modeling compound should be made plastic by moist, and the other materials by dry heat. An impression tray, the design of (Fig. 82) makes a valuable adjunct for confining the material to the desired location. It not only prevents the impression material from crowding into the interproximal space, but



FIG. 82.



FIG. 83.

holds it to proper conformation along the axial walls of the cavity. These trays are constructed from a stock of copper or German silver thimbles and may be made to conform to the tooth for each operation with a loss of but very little time. The tray should be so fitted that the length in the occluso-gingival direction will permit its edge to extend about 1 mm. beyond the gingival margin of the cavity. The handle (Fig. 83) which should be used with the tray permits it to be manipulated more easily and prevents obstruction to view during the process of fitting.

When any of the above mentioned materials are to be used for taking the impression, a small pellet of the material is made plastic and placed in the impression tray. The material should be passed through the flame to give its surface a glazed-like appearance. It is then pressed into the cavity, which is moist, with the pressure directed on a line with the axis of the tooth, and then chilled quickly and removed. Gutta percha does



## ITEMS OF INTEREST

not give so sharp an impression as modeling compound. It requires more heat to make it plastic and more pressure to force it to the walls of the cavity. Its use may be indicated, however, in those gingival cavities extending beneath the gum margin, where a moderate amount of force is required to press the gum from the cavity in order that an accurate impression of the gingival wall may be obtained.

If oxyphosphate of zinc cement is used for an impression material it should be mixed to a putty-like consistency, kneaded between the thumb and finger, and then placed in the impression tray. The material



FIG. 84.

should be forced into the cavity, in which it should remain until the cement has thoroughly hardened. The impression may fracture or change its form if the cement is removed while it is in a semi-plastic state.

**Models of Cavities.** Models of cavities may be made in amalgam, oxyphosphate of zinc, inlay metal (a preparation prepared by the S. S. White Company, which is similar to Spence's metal) and low fusing alloys. Each of these materials has some advantages, and if used when indicated, will meet the requirements.

Models constructed of amalgam present a sharp outline and seem to be as accurate as it is possible to obtain them unless they are constructed under pressure. The advantage of accuracy is the only point in its favor. It requires from four to six hours for the amalgam to thoroughly set, and unless it is manipulated at the proper consistency it gives a granular surface over which the matrix is to be swaged. There is always an element of uncertainty regarding the accuracy of the amalgam model, and the operator can not be relieved of the suspense until he has separated it from the impression.



Oxyphosphate of zinc may be used for constructing models, but the difficulty of securing accurate models unless constructed under pressure causes the element of uncertainty to be an objection. There are, however, these advantages over amalgam: The model may be separated from the impression in a comparatively short time, and if it is faulty another one may be constructed without delay, and the operator is not required to wait several hours before the matrix can be swaged.

The inlay metal is manipulated differently from amalgam, or the oxyphosphate cements. It fuses at a comparatively low temperature, and is cast into the impression. It is largely composed of sulphur and graphite, and if overheated it ignites, giving off the disagreeable odor of sulphur. If the metal is permitted to burn, its composition is changed and its properties are affected. It gives a sharp casting, and models constructed of this metal are fairly accurate. Low fusing alloys, composed of tin, lead, bismuth and cadmium, may be used for constructing models. They are particularly indicated in those cases where the matrix is to be burnished into the cavity after it has been swaged. They cast with a sharp imprint, and it requires but a few moments to construct a model with these alloys.

The technique of constructing models varies, and each material requires a method of constructing peculiar to it. If models are to be constructed of amalgam or cement without pressure, the impression should be invested with the impression of the cavity upward, in plaster of Paris to reinforce the frail walls (Fig. 84). This also gives a base which tends to hold the impression steady while the material for the model is packed into it. A rubber ring one inch in diameter and one-half inch long, is filled with plaster, mixed to a thick consistency, and then the impression is forced into the plaster so that all except the imprint of the cavity and the walls of the tooth are covered.

When amalgam is to be used for constructing  
**Amalgam Models.** a model, it should be mixed so that it has ample plasticity after a portion of the mercury has been expressed. It should be forced into the deep depressions of the impression with small flat-faced pluggers, and the excess mercury should be removed with cotton. The bulk of the impression should be filled by condensing the amalgam with large flat-faced pluggers. This prevents the "chopping" of the amalgam during the process of condensation and forces the excess mercury to the surface, which should be removed with pledgets of cotton or spunk.

If oxyphosphate of zinc is used for a model it  
**Oxyphosphate Models.** should be spatulated to a putty-like consistency and kneaded between the thumb and finger, until all air bubbles are excluded. The cement should be formed



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into an irregular conical shaped mass and forced into the impression with the thumbs and large burnishers. If the model is so constructed from an impression taken in cement, the impression should be coated with soapstone, and the cement used for the construction of the model should be of different color from that of the impression.

**Dr. Roach's Device.** Dr. F. Ewing Roach, of Chicago, has designed a device for making models under pressure (Fig. 85), which simplifies their construction and assists



FIG. 85.

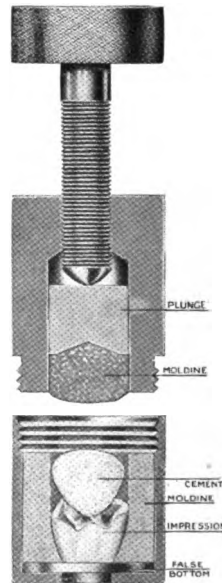


FIG. 86.

in obtaining more accurate models. The impression is invested in the base, which is filled with moldine (Fig. 86). The cement is mixed to a putty-like mass and packed in the impression, then the cylinder, which is filled with moldine, is screwed to the base and the plunger forced toward the base by screwing it in the cylinder. This makes constant and uniform pressure on the model while it is setting, thereby giving a sharper imprint than can be made by packing the material into the impression without constant pressure.

**The Author's Device.** When the model is to be constructed of the inlay metal or of a low fusing alloy, the impressions should be oiled and invested in moldine, imbedding all except the impression of the cavity and the walls



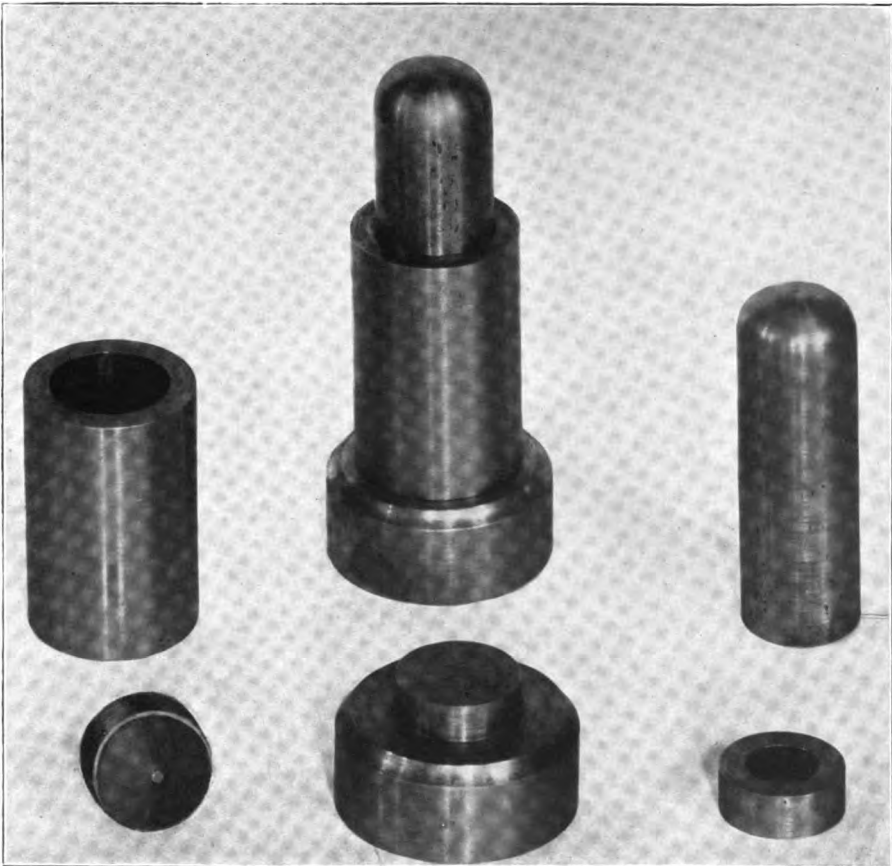


FIG. 87.

adjacent to it. The ring of a swaging device (Fig. 87), which acts as a matrix for the molten metal, should be placed over the impression with its larger opening downward, and with the center of the ring over the center of the impression. Care should be exercised to prevent the inlay metal from becoming overheated, and in case it ignites the flame should be extinguished immediately. The metal should be permitted to cool until it begins to crystalize around the edge of the ladle, then it should be poured into the impression, which has been oiled, through the smaller opening of the ring. If a low fusing alloy is used it should be heated over the flame until only a portion of the metal in the ladle is molten. As soon as the mass becomes liquid it should be cast into the impression by the same method as that employed for casting the inlay metal. In either case the impression should be removed immediately from the



## ITEMS OF INTEREST

moldine and immersed in cold water. After the metal has thoroughly crystallized the impression is removed from the model by making it plastic. If small particles of the impression material adhere to the model these may be removed by saturating a pledget of cotton with alcohol or chloro-

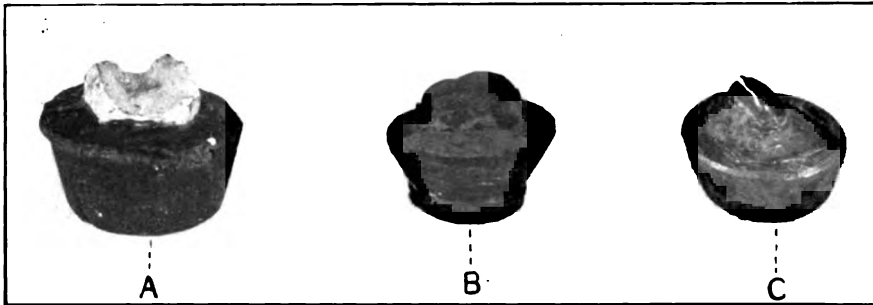


FIG. 88.



FIG. 89.



FIG. 90.

form and rubbing it over the model. The ring which acts as a matrix during the process of casting the model so shapes its base that no further investing is required for swaging (Fig. 88 B and C).

The best soft plungers for swaging matrices into models are made of velum rubber, and these are so constructed that they press the foil from the center of the cavity to the margins (Fig. 89). They are constructed by forcing a piece of plastic modeling compound through the cylinder of the swaging device with the metal plunger. The end that conforms to the face of the plunger remains unchanged while the opposite end is carved to any desired form. The modeling composition is then invested in plaster of Paris so that a mould will be constructed in two sections. After the modeling composition has been removed the mould is filled with velum rubber and vulcanized at a temperature of 310° F. for ninety minutes.

### **Swaging Matrices in Cavity Models.**

The technique of constructing a matrix by swaging it into the model of the cavity is as follows: Invest the model in the ring of the swaging device in modeling composition so that the center of the cavity is equidistant from the periphery (Fig. 88 A). An-



neal the foil, then force it into the model of the cavity with ball burnishers. After the foil has been irregularly forced into the model it should be swaged gently with the velum rubber plunger. Remove the matrix from the model and trim to proper size; dust the model with soapstone, applying it with a camel's hair brush, and blowing away the surplus. The

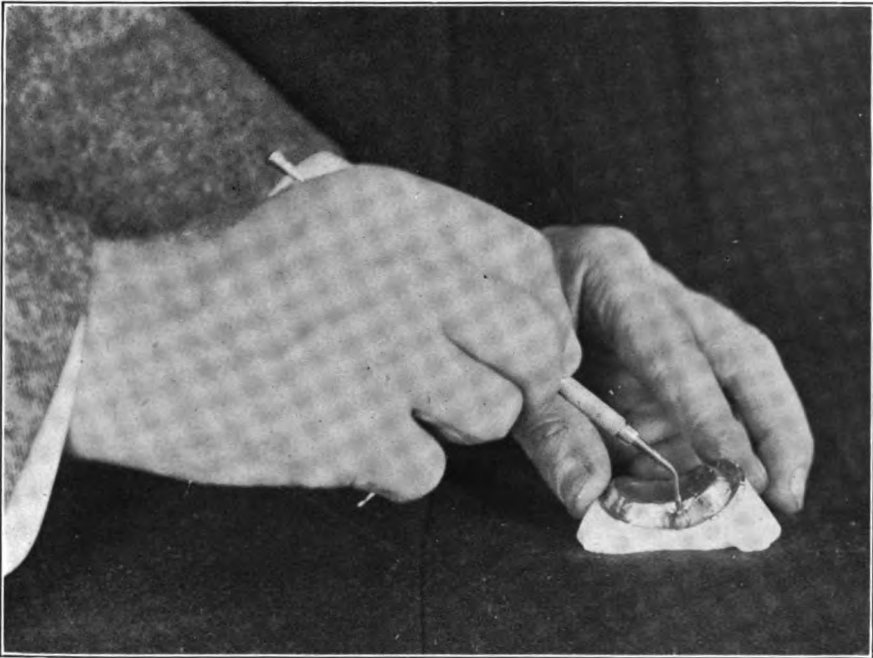


FIG. 91.

matrix is placed into position and given the final swaging. The most delicate step of the operation is removing the matrix from the model, as this must be done in such manner as to prevent distortion.

**Swaging Matrices  
over Impressions.**

The method of swaging matrices over impressions of cavities has some followers, and the advocates of this method claim that they can construct more accurately fitting inlays. However, experiments show that the thinnest film to which a layer of cement can be squeezed, under pressure equivalent to that applied in setting inlays, is not much less than  $1/2000$  of an inch in thickness, so that the inlay, when set with cement, will not absolutely fit the cavity. If simple approximal, approximo-incisal or approximo-occlusal cavities are pre-



## ITEMS OF INTEREST

pared with proper marginal form, there will be no perceptible difference in the fit of the inlay, whether it is constructed in a matrix, burnished into the cavity or swaged over an impression of the cavity.

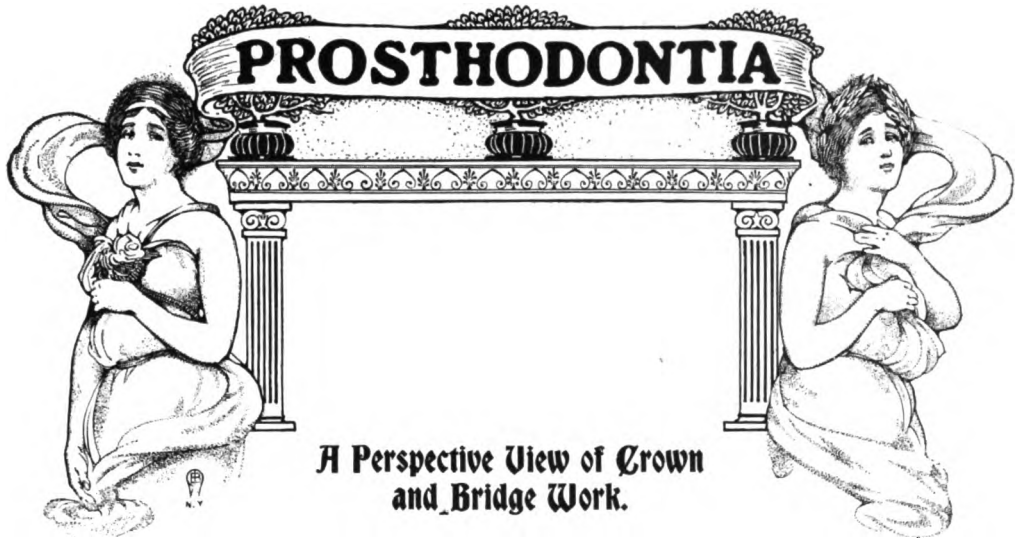
The method of constructing matrices over an impression is particularly indicated for cavities on the labial or buccal surfaces of teeth, or in any form of cavity known as a four-wall cavity. Such forms of cavities can not be prepared so that the matrix can be burnished into the cavity and the inlay compensate for the space of the matrix unless it be constructed with frail margins of porcelain, which lack edge strength, and are so thin that a change of color is noticeable along these margins.

The technique of constructing matrices, by swaging over an impression of the cavity, is as follows: The impression should be taken in cement, which should be mixed to a thick consistency. It should be formed into an irregular conical shaped mass, forced into the cavity and permitted to remain under pressure until it has hardened. To take an impression of a labial or buccal cavity extending beneath the gum margin, mix the cement to a thick consistency. Then with some form of retractor, crowd the gum back and force the cement to place with the fingers, holding it in position until it has hardened.

The impression (Fig. 90) is invested in the ring of the swaging device. A piece of platinum foil not thinner than  $1/1000$  of an inch is placed over the impression and partially swaged with the velum rubber plunger. The foil is then trimmed to proper shape and placed over the impression and burnished, at the angle formed by the cavity margins and the surface of the tooth, with steel burnishers (Fig. 91). The matrix is then removed and the impression dusted with soapstone; then the matrix is reswaged with a velum rubber plunger which has a flat face. It is then carefully removed without changing its form.

The method of swaging the matrix into a model of the cavity and then burnishing it directly into the cavity as a subsequent operation is particularly indicated for those approximo-occlusal cavities where the cavity extends far beneath the gingival margin and involves a large portion of the occlusal surface. The matrix may be swaged of gold or platinum  $1/500$  of an inch in thickness. If a heavy material is used for the matrix, there is less danger of warping during the process of fusing. The matrix, however, should become a part of the inlay. After it has been swaged to conform to the model, the foundation of the inlay should be fused, then the matrix placed into the cavity and burnished to conform to the cavity margins. The matrix should be trimmed close to the margins of the cavity after the final fusing, but the final finishing of the margins should not be accomplished until after it has been set.





By HART J. GOSLEE, D.D.S., Chicago, Ill.

*Read before Third, Fourth and Fifth District Societies of New York at Schenectady, Oct. 15, 1907, and Toronto Dental Society, Toronto, Canada, Nov. 5, 1907.*

In the evolution of the specialty of crown and bridge work the enthusiasm and ingenuity of the profession has resulted in the presentation of a myriad of methods. These encompass so varied a field that the practice in this particular line of work has always been more or less empirical, and, to a large extent, it still so remains.

This is evidenced by the fact that for many years each issue of our journals has teemed with the individual methods of those who had the ability or temerity to write, until he who is eager to keep apace with the progress of the day is now confronted by a bewildering array of procedures. Many of these have possessed, and do possess, merit. Others have proven to be invaluable. Those which have not stood the test of average practicability have soon been abandoned, and yet, *all* have contributed more or less to the wonderful progress of this specialty, and in turn of dentistry as a whole.

While the mental armamentarium of the modern practitioner should embrace a reasonable familiarity with all of those methods which may even possibly be useful, yet the time has arrived when we should begin to systematize our work so as to abandon the obsolete, relegate the indifferent, and improve the really practical.

If this were done to-day, I prophesy that it would be surprising



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how many of the procedures now in more or less common use might well be consigned to the garret of the past, and how comparatively few we could get along with. Indeed, I am forced to predict that the practice of the future will embrace but a small proportion of our present numerous methods, and that even then our efforts will be more successful, and our results better.

In this, however, I do not mean to infer that any one specific system, or particular method, will ever be universally applicable to the varying conditions which confront us, nor that any distinctive line of procedure can invariably be followed, but I do believe that the status of our development at the present time indicates that we could do better work with fewer methods, if we would but recognize the possibilities of the present, and use good judgment in their application.

If there is one thing above another which is needed, however, to rescue this important specialty from the empiricism of the past, and to place it upon a sound, practical, and scientific basis, it is a better knowledge of its underlying mechanical and dynamic principles, and a better appreciation of the essential requirements incident to the work which we attempt to accomplish. Indeed, we can not hope to use good judgment until this is acquired.

As an evidence of the fact that good judgment does not always dominate the operator who essays to do crown and bridge work, let me briefly call your attention to a few of the many questions which still remain unsolved, and regarding which the profession is even now woefully divided.

### **Unsolved Problems in Bridge Work.**

First, for example, should the pulps in teeth which are to support artificial crowns be devitalized as a procedure incident to the preparation of such teeth, or not? Second, should a crown be made with a band, or without? Third, should a band, when one is used, extend beneath the gum margin, or not? Fourth, should we destroy or mutilate the beautiful crown of a sound tooth for the purpose of obtaining support for a bridge, or not? Fifth, if this is not warrantable, should we use an open-face crown, a so-called "hood" or "groove" attachment, or some other method? And, sixth, should we use a "fixed" or a "removable" structure in the building of our bridges?

If dentistry is a scientific profession, and if it has progressed and developed with the marvelous rapidity with which it has been accredited, does it seem reasonable that such apparently simple and practical questions should remain unsolved?



## PROSTHODONTIA

While it is quite beyond the pale of human reason to expect that any scientific body should agree on all things, or that all would be unanimous in their deductions and conclusions, yet it is not at all unreasonable to expect a solution of these more or less fundamental propositions. There must be a right way and a wrong way, and in these instances one or the other must be right or wrong, in a large proportion, or, at least, in a majority of cases, and that procedure which is best in a majority of cases is the proper procedure in a very large proportion.

### **Pulp Removal.**

By way of analysis, the question of devitalizing the pulp of a tooth which is to be crowned is not one of personal equation, ~~nor one which should be~~ decided by the pet hobby of any man, but is simply a question of, first, whether it may be placed in a condition which will be most favorable to its comfort and longevity unless this is done. If such a tooth can be prepared from a mechanical aspect so as to admit of the accurate adjustment of an artificial crown, and if such preparation does not seem to endanger the vitality of the tooth, then to devitalize the pulp would perhaps be unnecessary, and consequently wrong, but unless this may be done and done in a thorough and conscientious manner—*which is seldom possible*—then devitalization becomes an absolute necessity, and must be resorted to whether we believe in it or not.

### **Bands.**

The same may also be said of the question as to the advisability of making a crown with or without a band. In this instance the point is not so much whether we believe in a band or not, but is a question of the physiological and mechanical requirements of the crown which the root is to support. These combined demand a union between crown and root which will afford a minimum of irritation and a maximum of strength. If such composite requirements may be obtained to the best advantage without a band, then the use of one is unnecessary, and therefore objectionable; but if the presence of a band will afford a better adaptation of the crown to both the *base* and *periphery* of the root, thereby minimizing the possibilities of irritation, and carrying the joint to a more immune area, thus better protecting the mounting medium, which its proper adaptation has usually heretofore afforded, then such a type of construction is not only indicated, but demanded as a practice.

### **Sacrificing Natural Crowns.**

The question as to whether we may or may not be warranted in sacrificing or mutilating the crown of a sound tooth for the purpose of obtaining support for missing teeth, should not be one of personal preference, but should and can only resolve itself into, first, whether



a fixed structure would be the best means of supplying the missing teeth or not; and, second, whether an artificial crown would afford the best and most permanent means of obtaining attachment to that tooth.

Until the present time an artificial crown has seemed to offer the best means of obtaining such attachment in the most artistic and permanent manner, for the reason that a better adaptation between it and the supporting tooth could be effected, than was so universally possible by any other means at our command. Previous to the successful application of inlay work this was true, because most, if not all, of our former methods were so difficult to adapt with any degree of accuracy that they could only be considered as being of a more or less temporary character, and since a remaining natural crown was thus saved—only to be subsequently lost—such a procedure was often warrantable, and would be so to-day under the same conditions.

**Fixed  
and Removable  
Bridge Work.**

The same general line of thought is also applicable to the question as to whether a fixed or a removable bridge should be used when missing teeth must be supplied. This, however, need no longer be considered a problem, but rather as a simple matter of judgment on the part of the operator, for there are distinctive indications and contraindications for the use of each.

If the position and stability of the teeth which remain, and which may be used to support the structure supplying the missing teeth, are favorable and adequate to the mechanical or dynamic requirements of a fixed structure, then such a type of construction is *indicated*, but in all cases where this may be at all doubtful, then a "removable" piece is *demande*d. Hence the success of the procedure will depend not so much upon the selection made from the vast array of methods at our command, but, on the contrary, must rest more or less entirely upon the appreciation of mechanics exercised by the operator. Indeed, my sympathy goes out to him in whom this faculty is not developed, and to his patients also when he essays to do dental bridge work.

Such an analysis of these so-called problems leads us to the conclusion that they are not questions of principles, but rather of judgment. Therefore, it behooves us to cultivate and develop this attribute to a higher degree if we would hope to aid in placing this specialty on a broader scientific and less empirical plane.

If this degree of judgment prevails, first in the application of correct principles, and, second, in the selection of methods of procedure, let me again prophesy that we will find ourselves discarding old methods, if indeed we have not already done so, and using even a lesser number of the new ones, and the practice of crown and bridge work will therefore become practically revolutionized.



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### **Influence of the Casting Machine.**

If the logic of such a statement is questioned let me say that it has been made possible largely by the advent of gold inlays and their assured usefulness, and particularly by the splendid achievements of Dr. W. H. Taggart, of Chicago, in the line of successfully casting gold and other metals, and for this reason to him more than to anyone else is due the credit for this revolution in our methods.

Accuracy of adaptation has always been and must always be the keystone of the arch in the successful application of crowns and bridges, and since this is now possible to a wonderful degree—to a degree never before achieved—and since it is applicable to crown and bridge work as well as to the filling of teeth, what must be the possibilities? Indeed, they seem unlimited. But even granting that such accuracy is to be obtained by the casting of metal, why does it follow that our methods are to be revolutionized by this process?

For answer let me say that a multitude of teeth which were formerly crowned for the purpose of effecting their individual restoration may now be successfully and permanently filled, and that the principal source of irritation and consequent discomfiture resulting from crown work in general will be thereby avoided.

Also, that many natural crowns of teeth which would otherwise be sacrificed for the purpose of obtaining anchorage for bridge work by the substitution of an artificial one, will be saved, and furthermore that the assured success of a well-adapted gold inlay, and the possibilities of obtaining such adaptation in all cases, will cause it ultimately to supersede other methods of obtaining anchorage or attachment to the crowns of remaining natural teeth.

In addition to this, it will enable us to adapt *accurately fitting metal bases* to the roots of teeth which are within the range of vision, and to use the various forms of replaceable porcelain crowns or teeth, instead of the ordinary pin facings, thus disposing of the question as to whether to use a band or not by removing the objections to one, and eliminating the element of inherent weakness caused by the presence of platinum pins in porcelain facings and giving us a combination of beauty and strength not to be obtained in a so-called "Richmond" or even in the more modern type of porcelain crown.

It will also enable us to successfully use replaceable porcelain teeth for dummies for bridge work in the posterior as well as in the anterior part of the mouth, thus improving upon former methods involving simple pin facings, usually of poor form or doubtful color, and a more or less



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conspicuous display of gold incisal edges and occlusal surfaces, and greatly diminishing the frequency of broken facings both in soldering and in mastication.

In this connection the heating of porcelain facings for the purpose of soldering, and their attachment to the metal structure by this means, has always been recognized as a more or less doubtful if not dangerous procedure, and as constituting an element of weakness in the finished piece. Both of these objectionable features, however, may be overcome or entirely eliminated by the strong assemblage of the metal parts only and the subsequent attachment of the porcelain to them by means of cementation, and as such an attachment is equally secure, and manifestly safer than the more rigid and unyielding one resulting from soldering, and as opportunity for replacement in the event of accident is always present and favorable, it must ultimately become recognized as the preferable procedure, and adopted as the general practice.

These possibilities will also enable us to construct bridges of any size with a minimum of solder and a maximum of strength, and to obtain all of the cosmetic advantages and none of the doubtful and objectionable features of porcelain bridge work.

Thus, also, in these enlightened and progressive days, when the leading minds of the profession are directed toward prophylaxis, will the *art* side of dentistry contribute to this splendid and growing cause by making possible the construction and application of better fitting and hence more "prophylactic" crowns and bridges.

### **Crown and Bridge Work of the Future.**

Again, venturing a prophesy for the future, let me suggest what I think will be the composite of typical and ideal methods.

For single crowns the all porcelain, hollow, or "jacket" crown is undoubtedly one of the most practical and cosmetic means of restoring the anterior teeth, and while it will probably come into more general use than it is at present, still the high order of skill required, and the fact that such a type of construction is not universally applicable, will necessarily limit the field of its usefulness.

The use of replaceable porcelain teeth without platinum pins, to be subsequently attached by cement, for individual crowns and also for dummies, or substitutes for the natural teeth in bridge work, must be considered as the solution of the problem of discolored and fractured facings, for the reasons mentioned, and hence is undoubtedly destined to become the practice of the future as soon as we can prevail upon the manufacturers to supply our wants and needs in this direction.

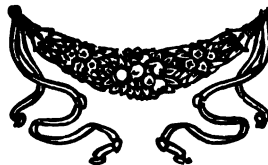


## PROSTHODONTIA

With porcelain teeth suitable for this purpose—and we will get them some day—we will thus have two general types of construction for single crowns, types which will embrace a field more or less universal in application and general usefulness, for all teeth within the range of vision. Combine these with the ordinary gold shell crown made to fit and to occlude properly, and applied to teeth so removed from the range of vision as to eliminate any objections from a cosmetic view-point, and we find a limited number of types, with an almost unlimited range of application.

Having also one general type of dummy for bridge work which will be equally practical, esthetic and applicable in the construction of dental bridges, then we will need but to consider what shall be the type of attachment to the supporting teeth, and I am of the opinion that three general types will ultimately answer our purposes in a very large majority of cases. The replaceable porcelain crown with cast base for anterior roots, where the substitution of the entire crown is indicated; the gold telescope crown for posterior roots, where crowning is demanded, and the inlay where all or even a sufficient portion of the crown of the natural tooth remains, and these attachments are equally applicable to “removable” as well as to “fixed” structures.

Thus may the construction of crown and bridge work be revolutionized, and, therefore, since we have these splendid possibilities ahead of us, must its practice become less empirical and more systematic, practical, cosmetic, and successful.







## **Necessity of Retention of the Temporary Teeth with Special Reference to Their Root-canal Filling.**

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By Dr. HENRY C. FERRIS, Brooklyn, N. Y.

*Read before the Second District Dental Society, March, 1907.*

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"If, unhappily, I dream,  
And prove too weak for so divine a theme,  
Let charity forgive me a mistake  
Which zeal, not vanity, has chanced to make,  
And spare the speaker for the subject's sake."

In the consideration of this subject we must first look to the laws of physical force which govern the growth of the human face. We find by comparative observations and measurements of skulls of increasing ages that the skull of the child grows forward and downward from the time of birth; and the greatest amount of development takes place in the dental region. By comparing the adult skull with that of a child we find if a line be drawn between the central points of the occipital condyles, it will divide the base of the skull into two portions, which in the child's skull are equal in length. The portion of the skull in front of a similar line in the adult skull is very much greater than that which lies behind, the proportion between the two parts being 5:3, against 3:3 in the child. (Froiep.) (Fig. 1.)





FIG. 1.

Scientifically, we must admit the hypothesis that in the germ cell there exists an architectural plan for the whole osseous development requiring twenty-one years, provided its nourishment is complete. Proceeding upon this premise, the dental arches, both deciduous and permanent, are to fill certain positions in the anatomy, just as the spinal vertebrae are to form a spinal column, and as the deciduous tooth is one of the first points of ossification, we can readily see why the deciduous teeth play such an important part in the development of their region. Each tooth develops in an independent manner in its own crypt in a growing structure, but arranged according to the divine plan (Fig. 2).

In its independent growth, its crown is formed first and its root grows toward the structure that has been previously ossified, compelling its



FIG. 2.



FIG. 3.



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crown to travel in the direction of the least resistance (Fig. 3). Dr. Wright, of Boston, has recently advanced the theory that in proportion to the vascularity of the growing tooth pulp, and the maintenance of the blood pressure, so will the normal growth of the teeth progress. If the blood pressure be lowered from any constitutional cause, the teeth will be slow in their eruption. Nature in its plan causes the anterior teeth to develop first, and the eruption of the posterior teeth in the arch, receiving the greatest resistance in the densest structure distally, are thrust outward and forward; and during eruption produce a forward pressure on an already formed continuous arch (Fig. 4).



FIG. 4.

After the eruption of the deciduous set, if in normal occlusion, this mechanical force in the development ceases, and there is a period of child life between the ages of two to four years when another physical force must be brought into play, if the osseous structure about the roots of these teeth are to be stimulated to normal development; this force is mastication. The Indian child is given rawhide to chew as soon as it has teeth, and with few exceptions develops a normal occlusion; while our children, the product of education, live on prepared food that requires no chewing and normal occlusion, even in the deciduous set, is an exception. I wish here to introduce a condition that is everyday before us and which should be recognized as a symptom for malocclusion, even though the teeth are in good arch and regular (Figs. 5, 6 and 7).



# ORTHODONTIA

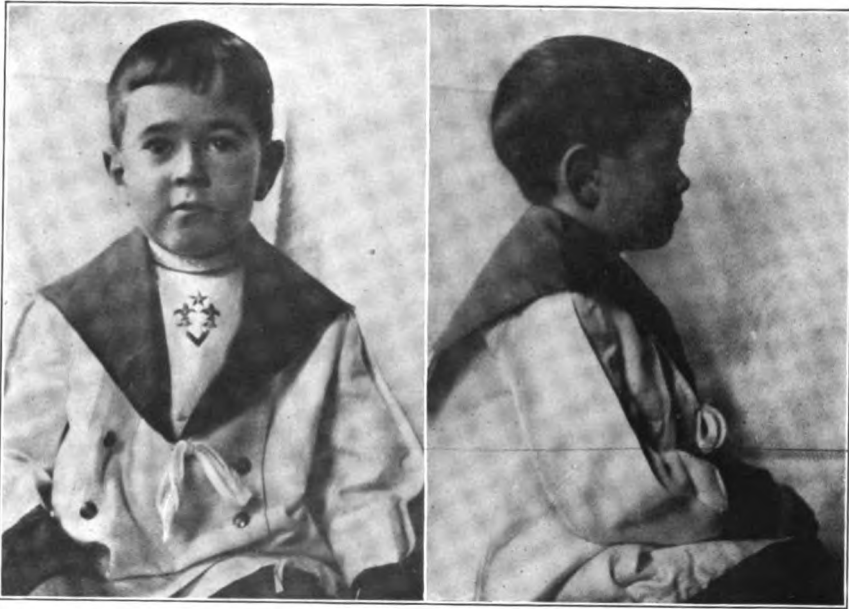


FIG. 5.

FIG. 6.

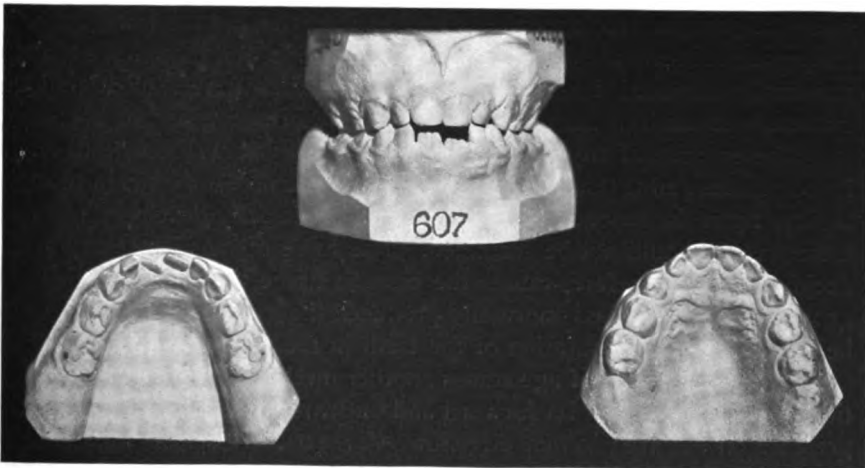


FIG. 7.



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At this age the teeth should be separated by at least  $\frac{3}{100}$  of an inch; the permanent incisors, in the average case, are one-third again as wide as those of the deciduous set.

They are to fill a space in an arch of much larger dimensions, but there must be a beginning for the formation of this arch, which practically develops in two centers with the forward growth; that of the molar region and that of the incisor region, the pre-molars and finally the cuspids uniting these centers. The latter tooth erupts last and crowds its way to as-



FIG. 8.

sume the position of a keystone (Fig. 8). Fig. 5 shows the lower arch, as the permanent teeth are erupting in torso-occlusion, and though we have an artistically balanced face at this age, the osseous development and the crowded condition of the teeth at twelve years of age would be appalling.

The exercise of any muscle in a growing physical structure develops its cell tissue, and if this muscle be developed, the necessary strain brought to bear upon the osseous attachments will necessarily develop that bone. Otherwise it would not be sustained. The force of mastication upon the deciduous set, therefore, causes the osseous tissue that supports them to grow. If this exercise is normally produced the growth of the bones will be manifest by the separation of the teeth in the arch (Fig. 9).

At the sixth year of age comes another mechanical force, in the eruption of the first molar. Its forward and outward thrust then increases the pressure on the arch in that direction (Fig. 10). If by any accident the continuity of the arch be lost by the extraction of one or more deciduous teeth or the malocclusion of the first set, this tooth will be thrust



## ORTHODONTIA

forward prematurely, partly because of the lack of mesial resistance and by the abnormal locking of the inclined planes of its cusps, to the position that it would otherwise ultimately attain, and the development of the anterior part of the face be retarded by the loss of this pressure. Figs. 11, 12 and 13, a case from the practice of Dr. J. Lowe Young, will prove this statement. The history of this case was, that the deciduous teeth were in normal occlusion, and now we have deformity of the permanent dentition as a result of this mutilation.

Assuming that the continuity of the deciduous set be normal and un-

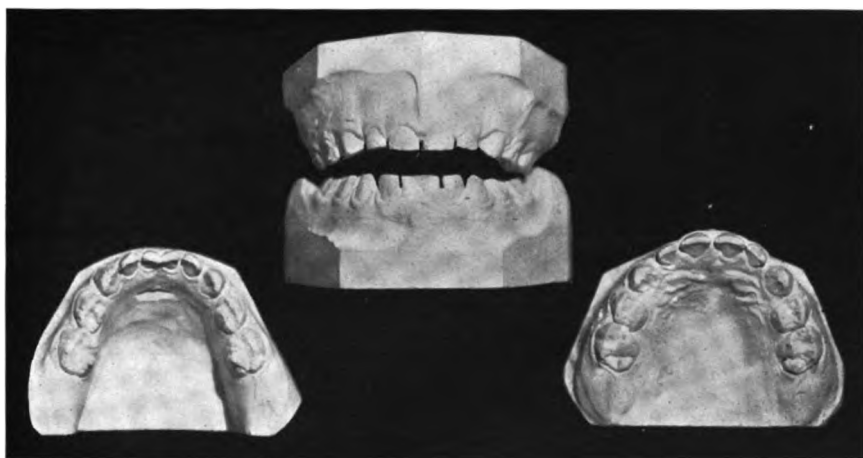


FIG. 9.

broken, this king of teeth exerts its pressure upon the forward part of the arch; and the osseous development progressing normally, without interference by habits or other pathological conditions, the anterior teeth will develop into normal occlusion, and we will have nature's architectural plan completed, which will give the best beauty and most perfect artistic balance of the face that this type can attain.

Dr. Edward H. Angle, after fifteen years' experience, presents this as a scientific truth, and our observations agree; therefore, we must do all in our power to maintain the continuity of the deciduous set of teeth, by contouring our fillings, which should be of materials which do not alter in their shape, and by the treatment of abscessed conditions which too frequently result in loss by extraction. If the condition demands extraction, our duty then is to maintain the continuity of the arch with a mechanical fixture to assist nature in its development. Abscesses are doubtless the greatest cause for the loss of the deciduous molars, and therefore the one most worthy of our consideration.



# ITEMS OF INTEREST

## Root-filling for Deciduous Teeth.

There are a number of methods of varying values recommended for treatment of this condition, none of which, however, fill the root canals with a material which is absorbed with the root, and any other offers a source of irritation for a recurrence of the pathological condition.

To fill the root canals which the osteoclasts are about to absorb to make room for the growing permanent tooth, we must have a material that will be absorbed with it, and will adhere to moist surfaces, as we can not



FIG. 10.

thoroughly dry them; a product which is non-irritating and, if non-medicinal, a conveyor of drugs. For this purpose your essayist wishes to suggest a treatment of formalin and trikresol, equal parts, as recommended by Dr. J. P. Buckley, for sterilization, which is to be removed in forty-eight hours. After the removal of carious matter the root canals are filled with this formula:

|                   |                |
|-------------------|----------------|
| R Isinglass ..... | dr. i          |
| Tannic acid.....  | gr. iss        |
| Trikresol .....   | m. iv          |
| Aqua dist. ....   | dr. i, gr. xxx |

This when heated to a temperature of 100° in an ordinary glue-pot or water bath (Fig. 14), becomes syrupy and can be readily introduced into the root canals with a piece of sterile catgut. If the canal be large



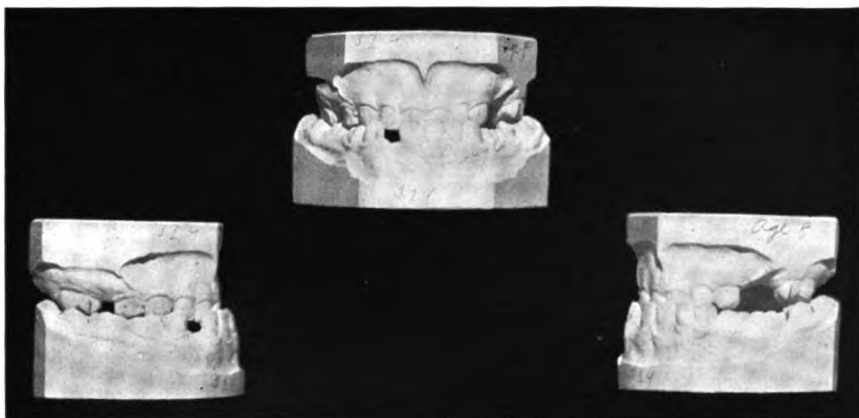


FIG. 11.

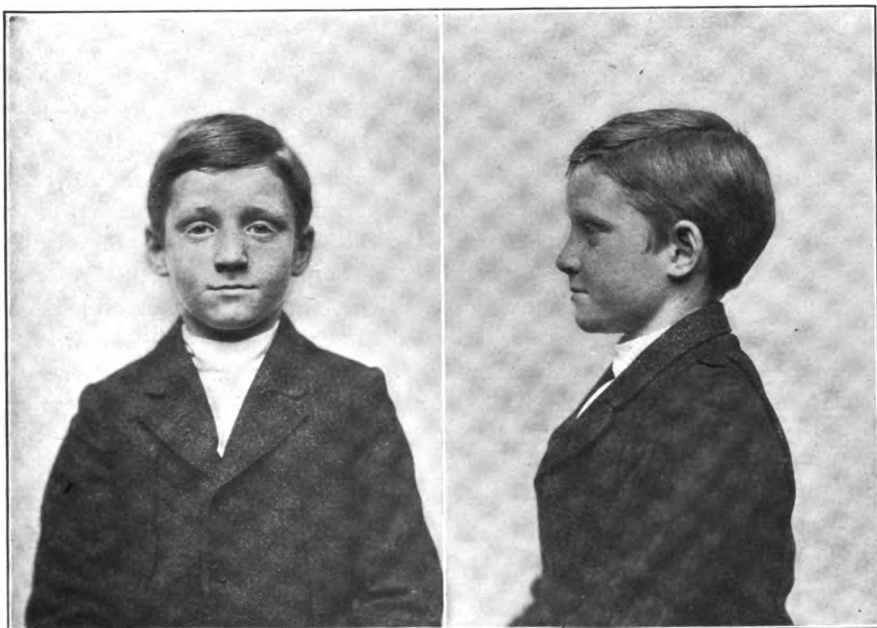


FIG. 12.

FIG. 13.



## ITEMS OF INTEREST

the catgut may be left in the canal. A ball of stiff phosphate of zinc is then pressed into the pulp chamber forcing the mixture through the canal and sinus. The cavity is then filled and contoured with silver amalgam.

The isinglass acts as a plug and conveyor; the trikresol is a clear white watery liquid, having three times the disinfecting value of carbolic acid, while it is three times less poisonous, and less caustic; and is



FIG. 14.

composed of ortho-cresol 35 per cent, metro-cresol 40 per cent., and para-cresol 25 per cent. In bacteriological experiments undertaken by Major Walter Reed, Curator of the Army Medical Museum in Washington, he found that a one per cent. solution of it accomplished as much as a four or five per cent. solution of carbolic acid. The tannic acid renders the mass less soluble, but the mixture will absorb under the physiological process of development. This treatment, while successful in the few cases where your essayist has been able to use it, remains to be tested by many to be declared a success, and it would be interesting to hear reports of others in the future upon the practice.

If by this method or any other we are able to save these important members of the deciduous set and maintain the continuity of the arches, we render humanity a service and fulfill our duty.





## **Cast Gold Inlays.**

### **A Clinical Demonstration and Lecture.**

By WM. H. TAGGART, D.D.S., Chicago, Ill.

*Delivered before the New Jersey State Dental Society, Asbury Park, July, 1907*

A number of years ago, after we had worked at inlays by the matrix process and found that it was a means of saving teeth—and saving bad teeth—I found in my own practice, and by watching other men, that the only improvement or advancement that was being made in inlay work was in the ability to handle the metal, mere skill in manipulation, and I felt that for any further improvements in inlay work we would have to go in an entirely different direction, and the idea came to me that casting would be the process.

I knew metals would shrink, but it never occurred to me there could be such a vast shrinkage in such a small quantity of metal. My first efforts were exceedingly crude, and I then thought of casting under pressure. This idea was not entirely new, but the methods in vogue were only applicable to large work, being too slow a process for the small portions of metal which we use. I then conceived the idea of doing it with compressed air. I made flasks which could be opened as in a vulcanizing case, but which had to be made air tight, otherwise the gold would squeeze out between the joints of the flask.

**Inlay Model  
Made of Wax.**

It then occurred to me to make a wax inlay, having the wax come in actual contact with the surface that was to be fitted with the gold, with no intervening matrix. After I had succeeded in making my first inlay by this insertion process the next one I made was a practical case, and from that time on I have not made an inlay in any



## ITEMS OF INTEREST

other way. My first apparatus was so crude as to require three or four different movements, and all this meant a loss of time, and perhaps just at the psychological moment. When the gold is in the proper condition you do not want to waste one moment of time in getting it to its place, and I think the process I will show you now will demonstrate that and show the benefit of taking advantage of every moment of time.

In the first place the wax inlay is made of a special wax which has been filtered a number of times in order to free it from any foreign substance, because the wax is inclosed entirely in the investing material and that material heated up to a very high temperature in order to burn out the wax, and if there were any foreign substances contained they would naturally cling to the side of the mould and to the extent of the size of the foreign body would interfere with the fit.

The cavity is prepared without any undercuts, as you would for any other inlay work. Without making any pretense to get the cavity dry (in fact the moisture is a help) a wad of wax sufficiently large to more than fill the cavity is pushed into all the inequalities of the cavity. In inlays from a cast I use vaselene to prevent sticking, but in the mouth the moisture of the saliva is all that is necessary. After the wax is inserted in the cavity, the patient is instructed to bite into the wax, and then I tell the patient to chew, as though he were chewing gum, which results in getting proper occlusion and obviates the possibility that some of the high cusps may be too high. At that period of the work I unseat it for the reason that later on, when it is in the form of an inlay, I do not want to use any force to lift it out. By getting the proper temperature of the wax in the mouth, by a stream of cold water, you can do a lot of carving in the mouth, but I prefer at this stage to lift it out of the cavity and carry it to the hydrant and holding it in the fingers let cold water run on it; at that temperature it gets so hard that you can carve it without marring the edges materially, although if you do so you always have an opportunity of putting it back into the cavity. After it is carved to the proper contour I put it back into the cavity.

You now have the occlusal surface correct, because it has been carved by these land marks—the marks of the opposing cuspids. The fact that the wax will slip in tightly will give you the proper approximal contour. If the tooth is in a normal position you do not have to do any wedging, because you want the close contact of the wax inlay against the opposing tooth; that indicates the proper contour.

Next I take a wad of cotton in tweezers and polish the inlay until it looks as if it had been passed through the flame, although this does not wear down the high points nor fill up the depressions, and the polish and finish you put on the inlay saves work after the casting of the gold. Then



I take a piece of tape, as though I were going to polish a gold filling, and pass it down in between, not pressing hard, but just rubbing lightly, and this burnishes the wax to the very finest feather edge that your cavity will permit of, and no matter how fine that feather edge may be in the wax it will be reproduced in the gold. Any excess or overhanging margins left in the inlay would naturally be in the gold, and it is easier to take it off in the wax than in the gold.

There is a little wire that I call a sprue wire, for it forms the hole through which the gold is eventually forced. I have my Bunsen burner



FIG. 1.

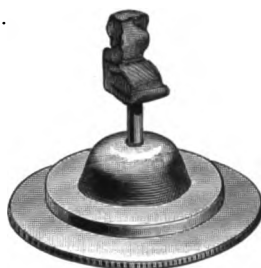


FIG. 2.

here, and I hold the sprue wire (indicating) in my fingers, so as not to get it too hot. The wax inlay is now attached to the end of this sprue wire (Fig. 1); that is then put into the cap of the flask in the central hole (Fig. 2); the cap of the flask has a bulge on it, and after the investment hardens you take the cap off and the reverse will have a depression of the same shape as the little bulge on the cap of the flask. That forms the crucible where the gold is to be melted, and the sprue wire forms the hole down into the wax inlay, the wax inlay being inside of this solid investing material.

Fig. 3 shows flask, cap down, filled with investment. Fig. 4 shows flask reversed, cap removed, and crucible; dotted lines indicate passage down to wax inlay.

At that stage we put it over a flame, which softens the wax and melts it. Then we are ready to cast.

(At this point Dr. Taggart produced a number of specimens, which he explained, and which were distributed among the audience for examination. Dr. Taggart stated that he should be pleased to answer any questions that might be asked.)



## ITEMS OF INTEREST

### **Casting a Hollow Inlay.**

The question is asked whether I can make a hollow inlay by this process. Yes. After the wax has been put into the cavity and unseated, by chilling it, you can hold it in your hand and with a sharp lancet can cut out of the internal part of the wax as much undercutting as you may desire; you can hollow it out and then put it back in the cavity, and as you do not have to press down on it hard after that, you do not crush the internal pocket. Then you can carve your inlay, and when it is cast it will have the same pocket in it.



FIG. 3.



FIG. 4.

These inlays will stick in cavities that no other inlays will, as they fit so tight, and there need not be so many retaining points as in other work of this kind.

### **Working from Models of Cavities.**

The question has been asked whether I always make the wax inlay in the mouth. I always do if I can; once in a while you will find a case where you can take an impression of the cavity more quickly, and then at your convenience or leisure make a model of it and work from the model. If you get a correct model you will get just as good a fit as you can from the cavity itself. The disadvantage is that eventually it takes more time, because after you become a little bit expert in this line of work, you can make a wax inlay as quickly as you can take the impression, and in that way avoid model making, articulating the model, and so on. Not only that, but you can make almost an ideal edge which you might not get in such a perfect way in a model of any kind.



**Taking  
Impressions of  
Cavities.**

Someone asks how I take an impression of the cavity for making a model. That goes into another line of work, and I will hardly have time to enlarge upon it. However, I take an impression in modeling compound, by using a piece of metal, bent to fit the approximal and occlusal surfaces, so as to get pressure against the cavity



FIG. 5.

walls with the investment material; then I lift that out of the cavity and chill it and trim it until I get a very narrow, overhanging margin, then I put it back into the cavity and press it down enough to reseal it, and chill it thoroughly, and thus procure a good impression of the cavity. In a model from that we get an accurate fit for the inlay.

The technique I am giving you has been worked out with much care and labor, and if you will follow these instructions you will not go very far astray. After you have learned the technique possibly your own way of manipulating the wax or investing material may give better results; I would rather you followed these instructions at first and after-



## ITEMS OF INTEREST

ward if you improve upon them I wish you would let me know, for it would be a great help to me, as a man is apt to get a little bit set in his ways in a matter of this kind.

### Investing the Wax Inlay.

Now I will show you the beginning of the investing process. Investing material and plaster of Paris have a great deal of contained air in them, and that contained air is not necessarily fatal but is very undesirable, and the efforts to jar out the resulting bubble only

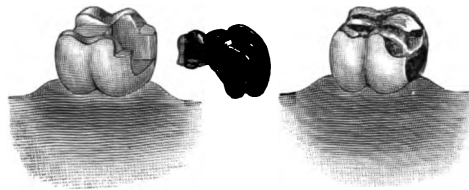


FIG. 6.

seems to bring up another bubble, and that would cling to the wax inlay. I use a tiny spatula for carrying the investment, and putting a little of the investing material on the wax *where you do not want it, and carefully pushing it ahead to where you do want it*, so as to prevent any air getting in ahead of you, bubbles will not be formed. When the wax is entirely surrounded I commence at the base to build up, and from this time on I

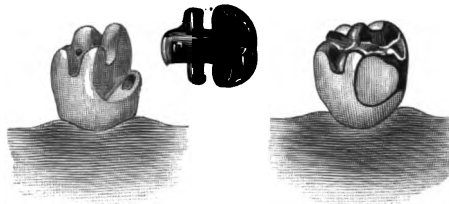


FIG. 7.

never like to jar it. (Dr. Taggart proceeded to illustrate his method of filling the flask with the investing material.)

The best time to invest wax inlay is the moment you take it out of the patient's mouth. If that is not done, and it is allowed to remain in a bottle or on a shelf, on a hot day like this its own weight might distort it a little. Always write the patient's name on the flask so as to distinguish one from another.



I generally allow about fifteen or twenty minutes for the investing material to get hard. The wax is burned out by putting it over a Bunsen flame and allowing it to remain there until the gases formed by the melting wax will light at the little sprue hole; then it is burned up in that way.

The question has been asked whether this investing material is ordinary plaster of Paris. It is not; plaster of Paris would disintegrate, it would not withstand the heat; it must be loaded up with other material. (Dr. Taggart here proceeded to illustrate the use of the machine, Fig. 5.) The forward part of the machine, where the handle is seen, is where the melting of the gold and the casting is done. At the other side is seen an ordinary cylinder of nitrous-oxid, just as it is procured from the supply houses. This supplies the blowpipe, producing a nitrous-oxid flame, and also furnishes the pressure for casting. The gauge regulates the flow of nitrous-oxid, so that the pressure may be made proportionate to the mass of metal to be cast, fifteen pounds pressure sufficing for ordinary inlays. The invested inlay having been heated up until all the wax shall have been certainly melted, the flask is placed in the casting device, crucible side uppermost. A mass of gold is then placed in the crucible. It is inadvisable to use scraps, as a small particle might become melted before the rest and run down into the mould; the gold to be utilized, therefore, should be previously melted into a single lump, and should be free of dross of all kinds. The nitrous-oxid blowpipe is then lighted and turned so that it plays down directly upon the mass of gold. It will first melt and a moment later begin to "boil." At this exact moment the level is sharply thrown downward. Instantly the blowpipe is automatically switched aside, and pressure of the gas is turned upon the molten mass, thus casting it.

The question has been asked, why does this gold not shrink? The molecules of gold when melted and allowed to take their own shape and position in the cooling mass will fall away from the edges, and that causes a shrinkage. Under these conditions I force that gold in its thinnest condition, and I say to the molecules—with the force of fifteen or twenty pounds behind them: "You stay where I put you"—and they do, and there is no shrinkage.

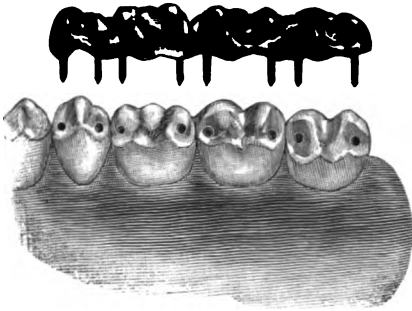
Here (exhibiting inlay) is the completed inlay. It is very seldom that in a clinic one meets with complete success, but this time we have, for there is not a blemish upon it. (Loud applause.)

On motion a unanimous vote of thanks was extended to Dr. Taggart.

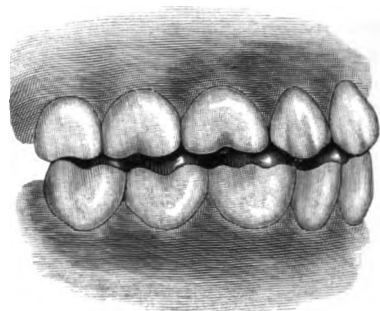
On motion adjourned until 8 o'clock P. M.



# ITEMS OF INTEREST



A



B

FIG. 9.

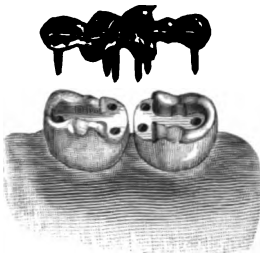


FIG. 8.

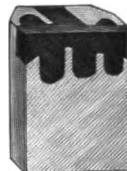


FIG. 10.



FIG. 11.



FIG. 12.



FIG. 13.

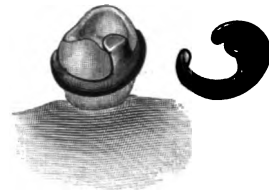


FIG. 14.



FIG. 15.

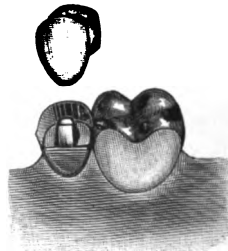


FIG. 16.



FIG. 17.



### Explanation of Illustrations.

Fig. 1 shows a wax model of an inlay, attached to the sprue wire. After shaping the cavity the wax is pressed into it, carved to shape and gently removed. It is then held in the fingers of the left hand, and the sprue wire in the right is heated in a flame until it can barely be held. The heated end is then gently forced into the wax model of the inlay and appears as seen in the figure.

Fig. 2 shows the sprue wire carrying the model, seated in its socket in the cap of the flask.

Fig. 3 shows the flask ring in place and filled with investment. The investing material is carefully placed about the wax model first, as described by Dr. Taggart, after which the flask ring is slipped over it and adjusted to the cap, whereupon the investment is completed by filling the ring flush.

Fig. 4 shows the cap removed and the flask ring turned over, disclosing the crucible formed in the investment by the cap, while the dotted lines indicate the position of the sprue and mould of the inlay.

Fig. 5 is the Taggart casting machine.

Fig. 6 shows a Taggart inlay in position, the inlay itself, and the cavity preparation. Such an inlay may be made solid or it may be made hollow, as shown in the figure in which the under side of the inlay is seen.

Fig. 7 shows a combination gold and porcelain inlay. In the case illustrated caries had destroyed the mesio-buccal corner of an upper first molar. The cavity was prepared so that the inlay would be firmly locked in the morsal surface. The mesio-buccal face of the wax was cut away almost to the margins, and a box-shaped cavity formed in the wax. This was cast, and returned to the cavity when it was thoroughly adapted and polished. The gold was then stoned away to an almost invisible joint at the buccal margin, and the porcelain was baked directly into the inlay. It is, therefore, not a porcelain inlay set with cement, but is baked into the gold inlay, and firmly held by undercuts. When set very little gold shows.

Fig. 8 is a double inlay for splinting together teeth loosened by pyorrhea. Such a continuous inlay may be made with or without pins, as may be deemed essential to the exigencies of the case. Where pins are used, the holes are drilled with the right angle engine handpiece, and are made as nearly parallel as possible. It is not essential that the pins should have heads, as the gold cast about them will be firmly attached to the platinum pins, but each pin should first have a bit of wax fused to its topmost end, so that the wax when pressed over them in forming the inlay model, will more readily engage them. The wax model will come



## ITEMS OF INTEREST

away, withdrawing the pins, and all are invested together, the investment holding the pins when the wax is melted from the mould.

Fig. 9 is a specimen made by Dr. Taggart to show an extreme possibility. Two pins were placed in the tops of each of four teeth and the wax forced over them all. The teeth were then brought into apposition, so that the wax received the imprint of the opposing cusps. Fig. 9 A shows the gold inlay made to cover four teeth and carrying eight pins, and Fig. 9 B shows the same in place and the absoluteness of the fit, both to the teeth which receive the "inlay" and to the occlusion. In such manner a "bite" might be opened, and more or less loose teeth splinted together at the same time.

Fig. 10 was made by Dr. Taggart to show an extreme cavity formation. He prepared the curiously complex cavity in the end of a piece of ivory, made an inlay, cemented it to place and then cut it in half. The figure shows one section.

Fig. 11 is a similar section through a root and porcelain crown united by a Taggart casting.

Fig. 12 is a remarkable evidence of the accuracy with which the machine casts. Dr. Taggart tied a piece of wax into a double knot as seen, and cast it in gold. The figure is actual size.

Fig. 13 is another remarkable casting made by Dr. Taggart from a wax model carved by himself, and this figure also is actual size. The exact identity of the animal is known only to Dr. Taggart, but savants believe that he has fashioned it from descriptions of the prehistoric "*doghorsehippopotamus*."

Fig. 14 shows a Bonwill clasp cast by Dr. Taggart of "clasp" gold. Despite contrary expectations it retains its spring quality.

Fig. 15 is a partial piece carrying three teeth and two clasps, also cast in clasp gold. The teeth are attached subsequently with cement.

Fig. 16 shows an inlay carrying an extension for the reception of a pinless tooth, which is cemented to place. It is prophesied that the crown and bridge work of the future will largely be composed of cast bases, carrying pinless teeth cemented to place, thus making repairs easier. No attempt should ever be made to cast directly against pin facings, because even though it may often be done successfully, teeth so attached to backings will be as liable to fracture as teeth backed and soldered in the old-fashioned way, and the one real grievance that patients have had against dentists in the past has been the destructibility of fixed bridge pieces, and the expensiveness of repairs.

Fig. 17 shows a cast backing for the lingual surface of a natural tooth, which will often serve as an attachment for one end of a small bridge piece.





## Some Random Society Experiences.

By CHARLES A. MEEKER, D.D.S.

*Read before the Second District Dental Society, Brooklyn, October 14, 1907.*

In the present day, with dental society meetings occurring nine months in the year, it is extremely difficult to present a new subject for discussion.

I have no new theory, no new truths to present to you this evening, and therefore crave your indulgence at the outset and ask you to forgive my apparent lack of modesty in the use of the personal pronoun "I."

It is my purpose this evening to present to you my society experiences from the time of my entering official life in connection with State society work in my own State in the year 1875. But, first of all, I desire to pay a debt of gratitude to Dr. William H. Atkinson, of whom it was well said, "He was at least twenty years ahead of his time," and who did more, perhaps, than anyone else by inculcating in the minds of the young men of his period (myself included) the desire to become better dentists. He placed the profession on a higher plane before the general public by his fees (always high), which he regarded as commensurate with his professional skill.

He courted a legal contest so as to bring himself and the profession into the limelight, and when the case came before the jury and the public, gracefully arbitrated the amount. But he accomplished his purpose by forcing before the public the fact that dentistry is a scientific profession, and no longer a side issue to the barber, as was cutting and leeching.

During my first year in office, in 1875, at Atlantic City, Dr. Atkinson was present, and he was then nearly in the zenith of his popularity. I was but just one degree removed from the "kid" class, and while I may have been perhaps a good mechanic, I had the impression that I knew it all, and under this impression prepared and read a paper at the meeting. During the discussion Dr. Atkinson slashed it up and down and across, and swatted it most unmercifully, leaving but a wilted subject when he got through with it. In one respect Dr. Atkinson differed very much from many of the older members of the profession of that day, in his attitude toward a young man who had the courage to read a paper. After the close of the session he sought me out, and putting his arm around me affectionately said that he had only done it for my good and advised me before reading another paper in public to master my subject



## ITEMS OF INTEREST

thoroughly, to be sure I was right in what I said. This was Dr. Atkinson's method, to stimulate the ambition of the young men of his time with whom he came in contact, and he was invariably their fast and firm friend afterward.

During my first year as secretary nine essayists were presented at the meeting, Norman W. Kingsley being the star and Atkinson the man who combatted with every one of the speakers. We had one clinic and no exhibits. The next year we had seven papers, Dr. Atkinson presenting one on "Tumors and Abscesses," and no clinics or exhibits. In 1878 we again had a paper by Atkinson and another one by Bonwill and no exhibits and no clinics. In the following year, 1879, when the present essayist had the honor of holding the office of president, we had plenty of papers, but no exhibits or clinics. Besides this there were plenty of personal arguments in the meetings, and I believe that was simply because we had too many papers and no exhibits or clinics.

At that time the older and better known members of the old American Dental Association considered it beneath the dignity of the profession to give clinics or to have exhibits, and both were frowned upon. I thought that if I could obtain the co-operation of the more prominent members, we would have both as inducements for the men to come to the meeting, and in 1883 we had in our program five different clinics, Dr. C. W. F. Boedecker, of New York, being the star with a lantern exhibition on "The Anatomy of Tooth Structure." There were not quite enough clinics to round out nicely the day's program, so I faked a "Dr. Gardener, of Marseilles, France"; it is needless to say that he did not make his appearance with his new "cast metal base," though he was asked for a number of times. At this meeting quite a number of the profession came down with exhibits, and there was an increased attendance, and the meeting went off finely. The next year Atkinson, Bonwill, and Carl Heitzman read papers, and there were a number of exhibits and clinics, including my old friend Gardener, of France. By this time it was pretty conclusively proven, if our society meetings were to attract a large number of the profession, we must offer them a post-graduate course in dentistry through clinics and exhibits as well as instruction from papers read by eminent members of our own and other societies. With this end in view, at the following meeting we had not only plenty of papers, a number of exhibits and many interesting clinics, but also a reception at Asbury Park, with the Governor of the State in attendance. In 1886 we made strong efforts to secure an advance in the character of the meeting, and this year showed the beginning of the enviable reputation which we now hold as a dental society. We gave a big dinner at the Coleman House, Asbury Park, to Dr. William Herbst, of Germany,



then on a visit to this country, and he gave a clinic illustrating his rotary method of filling teeth. Besides this we had Atkinson, Frank Abbott, O. E. Hill, Northrop, W. W. Walker, Darby, Dwinelle, Finley, Hunt, Winder, Kingsley, Carr, Boedecker, Bond Littig, James Truman, Bonwill, and other well-known men. This meeting ended in a blaze of glory and helped the reputation of the society, but if I should continue to tell you of the meetings from year to year since that time it would be but a history of our society.

The real point is, What did our members and friends deduce from these society experiences? and it seems to me the question arising for discussion is whether we are right or wrong in our methods of managing our society. The men who helped by their enthusiasm, their knowledge, and their work to make our society what it is to-day were Drs. Atkinson, W. W. Walker, Northrop, Frank Abbott, George Evans, O. E. Hill, Carl Heitzman, C. W. F. Boedecker, Bonwill, Norman W. Kingsley, C. N. Pierce, Rodrigues Ottolengui, James G. Palmer, and others I can not recall, many of whom have now passed beyond. Among our own members who worked hard for our success and have now passed to the great majority were Drs. Fred A. Levy, George C. Brown, J. W. Scarborough, Jeremiah A. Hayhurst, J. W. Cosad, and others whom I can not at this moment name. Of the elder members now living and to whom belongs in a great measure the credit for having made our society what it is to-day, I may mention Drs. C. S. Stockton, B. F. Luckey, R. M. Sanger, Oscar Adelburg, George E. Adams, F. C. Barlow, H. A. Hull, Harvey Iredell, Alphonso Irwin, C. W. Holbrook, J. C. Clark, William P. Richards; and there are a host of younger men who are still working for the good of the society, but whom it would take me too long to mention individually and whose names will doubtless be famous in the years to come.

**Successful  
Method of Society  
Management.**

My experience is that to run a dental society successfully, you must first recognize that man by nature is gregarious; the social element is strong within him; give him a paper to discuss which pertains to his every-day work, with dentistry, what he is conversant with; then in the discussion try to draw out the views of the younger men; have plenty of clinics, which in reality form a post-graduate course showing by object lessons how one particular man performs certain operations.

Then show by exhibits the whole range of new appliances by which the dentist may do his every-day work better or easier. The average dentist visits but one dental depot to see new things only occasionally, and then to see only such things as may be found in that particular depot.



## ITEMS OF INTEREST

An exhibit of all the new things from all over the country shows him the efforts of hundreds of men who are engaged in thinking out and perfecting new ideas, thus taking him out of the rut in which he may be traveling.

### **Encouragement to Young Men.**

Then, in every society it should be made known that the youngest member, if he is willing to put his shoulder to the wheel, will in time receive as his reward the highest office in the gift of the society as a positive certainty. It does not matter if he is not a parliamentarian; his experience from the very beginning, when serving on some minor committee, until he reaches the highest office, will broaden his whole makeup; nor will you have any occasion to be ashamed of him, provided he has always been earnest and energetic in his endeavors to work for the success of the society.

I have watched and seen many a young man reach the goal of the presidency, who, despite his modest mein, I felt sure was made of the right material. Do not allow politics or the genius or brilliancy of one member to keep another down who is a hard worker.

### **The Value of Dining Well.**

Cultivate the gastronomical side of the nature of the members (this is my own secret), for the average dentist, who works eight or ten hours each day, has many trials to contend with, many a patient to work for who tries his nerves, and oft times when he reaches a dental meeting his condition is such physically that he is not good company, but a good dinner sets the whole nervous system working, and the hypnotism of suggestion, gradually acts on the entire assemblage and changes the whole trend of his thought and feeling. He sees that his brother dentists are pretty good men after all, and the world looks much more rosy than it did an hour before.

Dickens has been severely criticized because he makes his characters eat so often, but his critics were usually those who lived lives of more or less seclusion, and lacked social characteristics; to the real man and woman of the work-day world his tales of the supper table produce a glow of satisfaction and make them more considerate of those with whom they come in contact. This same influence exerts itself upon the members of the dental society after a good dinner with congenial company. They really have new aims and higher ambitions, and when they discuss a paper, higher thoughts and higher aspirations are apt to be brought out, and thus there is created a brotherhood in the profession and a higher estimation of the society itself. I can myself refer many bright spots in my professional career to the dinners of the old Brooklyn Dental Society, to the meetings and collations of this society in the offices of the



members and in the "Old Argyle Rooms"—indeed the mere fact of eating, even bread and cheese with beer, seems to change a man's feeling and give him a more kindly disposition toward his fellow men. We are not all angels in temperament, but we can all try, when differences arise and we think a brother dentist has wronged us, to stifle our pride and seek to make up our differences. I do not say we can always do it, but we can at least have the disposition to try. I have often succeeded in doing this myself, and shall earnestly seek to school myself to do so more often as I grow older.

And now I come to my last formula for making a society strong. I am fully cognizant that many here will honestly differ with me, but I am in earnest, for thirty-two years' experience has shown me the result in our own State and local societies. I know it has accomplished great good in two measures particularly. It is to take the public in your confidence, through the public press. I am a firm believer that the press, the daily disseminator of occurrences from day to day, is a powerful agent for the public good. There are four reasons why this will aid your society.

First. You show to the general reading public what you are doing to educate yourself and your fellow members; that you are banded together for the general good, so as to secure the benefit of the latest methods. If there is a new gold brick scheme, the public will know of it, and they will no longer call you a "tooth carpenter," though in some places they hear so little of the operations of the profession and its doings that they might sometimes be justified in using that term.

Second. Truth is sometimes apt to hurt, and when you see in cold type any of your deficiencies you will try to correct them, so that you need not be told of them the second time.

Third. It shows to the reading public the difference between fakirs and quacks, and yourselves. Your patients will read the new discoveries in your profession, and they will begin to think that the man who occupied columns of the daily papers at the expenditure of thousands of dollars every week, exploiting his methods of putting new teeth in an edentulous jaw and making loose ones tight, is telling fairy tales, and thus—as from the exposure of the newest swindle in the papers—the general public becomes wise.

Fourth. It will help the ethical dentist because the reading public will discriminate between the members of the society and the unethical man who advertises to do impossible things, and show a strong distinction between the members of the society who are working to disseminate knowledge for the general good and the fakir who is only after their



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money. In time the effect of this information will become so strong that the patient will select the society member to do his work, or wonder why his dentist, if an advertiser, is not a member of the society.

Someone with a love for statistics has said that every dentist must have one thousand patients to make a living. If we have a society of one hundred members, every paper that prints your proceedings will be read by and will educate at least one hundred thousand people, and it might be that your own name would be mentioned and that one of your one thousand patients would be interested to see the name of his own dentist.

*The income of the dentist is derived mostly from men who constitute the work-a-day world, and life in the cities is a daily rush.* The education of these men is mainly derived from the daily press. They have but little time for literature or fiction, therefore I advocate educating the men who pay your bills and letting them know what you are doing for them and their families.

Now, to prove my contention that the methods  
**State Society Meeting Successful.** I have advocated have proven successful, I will mention the fact that New Jersey is but a small State, and but one thousand and sixteen men have been

licensed by the Board since the passage of the law. We have no brilliant nor scientific men who have made their names famous by delving in science or discovering new methods or truths in the anatomy or physiology of the oral regions, just plain, every-day dentists. Yet our State society meetings are famous.

In arranging for our annual meetings, we pay particular attention to our clinics. Last July we had sixty clinicians on our list, fifty-four of whom attended. These were men from all parts of the country, and they performed work in nearly the whole range of operations that the every-day dentist is called upon to do, and showed many new and unique methods. Our essays were few, but on interesting subjects, and by men well known throughout the entire country. Our exhibits were from the four corners of the United States, and showed everything worth showing or worthy of a place in modern dentistry. We try to treat our exhibitors the best we know how, meet them half way in courtesy and try to do everything in our power to make them our friends and co-workers, and without the slightest deviation from the truth I can honestly say that during my experience (excepting two instances) we have received nothing but praise and commendation for our treatment toward them. It has been our aim to make our program as original and artistic as our finances could afford, and the old saying that "Imitation is the sincerest form of flattery," is well illustrated in the fact that the methods used by us in preparing our programs have been copied by many dental societies throughout the United States. We send copies of them to every



newspaper in the State, and to many prominent men and politicians, so that they may see what the dental profession is accomplishing. This I regard as good policy in case dental legislation may be needed in the future. Besides this, our programs are mailed to eminent men of this and foreign countries and wherever it seems they will do most good.

All this tends to bring us before the lay public, and this I consider perfectly ethical advertising. We also equip a refreshment room, to which all are welcome, and there, under the guidance of one of the best and most loved of our members, many a good friend has been made—this perhaps is also advertising, but not to the public.

New Jersey being a small State, we have but a small membership and but minimum dues, nor can we expect a large attendance. Nevertheless, last July our registration showed eight hundred and forty-two names, nor do we flatter ourselves that all who attended registered. Our treasurer, who is the "best ever," informs us that the cost of our last session was close to fifteen hundred dollars, and it was well worth it. The force of example has been so great throughout the past years that every member of a committee, from the least important, works hard and unceasingly, for he knows his reward is coming, and politics, the great bane of dental societies, is not tolerated.

**Only Members  
Admitted to  
Meetings.**

Last July we followed the example of some other States, and barred out from our meetings all dentists practicing in New Jersey who were not members of our society. This action required considerable courage, but every member of the executive committee stood firm, and the end justified the means, for we took in fifty-two new members. Two strong arguments were used and were believed to be correct, viz.: it draws the line closer and makes the public distinguish between the ethical and the fakir dentist, and it makes a distinction between the men who work hard to improve their profession and standing before the people, and those who come to our meetings and enjoy everything set before them and selfishly refuse to work or even pay a minimum fee. But one important dental house refused to exhibit on account of our policy, and their fee for space was returned at once. I predict that other societies will follow this method, and dental houses opposing the plan will, no doubt, inaugurate manufacturers' exhibits in self-defense.

**Local Societies in  
New Jersey.**

In reference to our local society, the C. D. A. This we consider a most unique and independent society. By persistent advertising among the profession generally it is known throughout the world. Since it was first started in 1880 we have held meetings eight months during the year, and at each meeting there has been a banquet before the business session: we have prepared and sent programs broadcast,



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which we have made both interesting in their matter and artistic in their appearance, and at the same time we have tried to give a good dinner for a small price. We have been independent from the fact that anything appertaining to dentistry is given a hearing. Of course, it is impossible in a dental society with meetings in the evening to give clinics, therefore the social side has been developed most. In our twenty-six years existence we have had all sorts and conditions of men, members of the profession and others, read papers on subjects pertaining to our profession or those closely allied to it. I believe that the Central Dental Association of Northern New Jersey is as well known as the State society in consequence of persistent mailing of programs to prominent dentists of note in this and other countries. Of course, we have had our little differences and fights, but everything in time reaches harmonious conclusion. The same rule concerning politics exists in the C. D. A. as in the State society. Any men who are willing to work on the least important committees in time may reach the highest office within the gift of the society, that of president.

It has been the aim of every member to aid in the formation of other societies, and we now have in our little State of New Jersey six local societies, all doing good work toward improving the status of our profession, the main part being that the more ethical men are organizing and creating a tendency of the public to drive out non-ethical dentists.

The annual banquets of this society have been for years the meeting ground for prominent men in the profession throughout the country.

Considerable antagonism was exhibited toward the dinner committee during the past two years because these annual meetings were held in New York. This was mainly because there was no banquet-hall with adequate service and accommodations for the large membership of the society, and its visitors, to be had in our own city. The local society and the Brooklyn society have always been on the most friendly terms, and have had many meetings together, and it is the sincere hope of the essayist that this spirit of friendship will always exist.

To recapitulate, it seems to me that the subjects which this paper should bring out for discussion are:

First.—Cater to a man's social instincts.

Second.—Have plenty of clinics and exhibits.

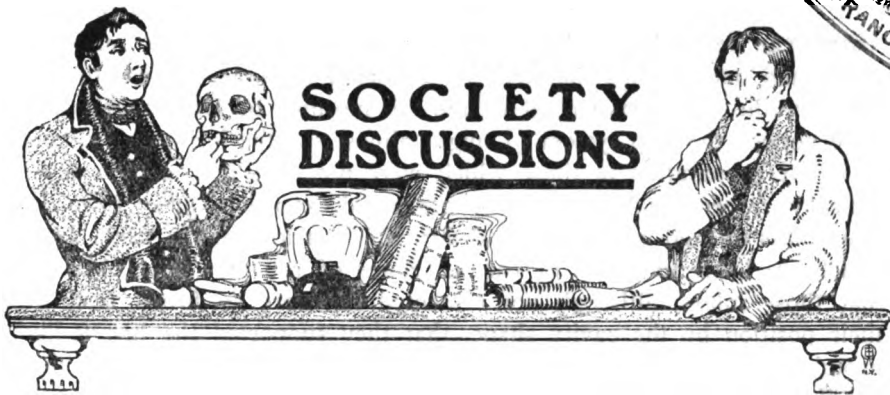
Third.—Eliminate politics.

Fourth.—Give every member who shows a willingness to work for a position the opportunity of achieving it.

Fifth.—Invite the press to our meetings and advertise ourselves ethically in this way.

Sixth.—Take the public into our confidence and thus lead them to distinguish between the ethical man and the fakir.





### **New Jersey State Dental Society.**

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Thursday, July 18, 1907, evening session. President Brinkman called the meeting to order. On motion, a quorum being present, the roll call was dispensed with.

The president announced the receipt of a telegram from Dr. B. Holly Smith stating that because of illness in his family he was unable to be present and that he had mailed his paper.

The president then introduced Dr. Alphonso Irwin, who read the second section of the history of the society. On motion the same was accepted and placed on file.

The president announced the appointment of the following committee on oral hygiene, in accordance with the suggestion of the National Association: Drs. H. S. Sutphen, Wallace F. Naylor, and Richard C. Fowler.

### **Discussion of Dr. Caggart's Paper.**

Instead of discussing the method, I will make a few remarks upon its utility and try to draw a comparison between the usefulness of this particular style of inlay and of other gold inlays which have preceded it.

Hitherto we have had gold inlays mainly of two kinds, one a simple gold inlay made from a single matrix which was filled with solder; the other a more complicated inlay made primarily from a matrix capped or covered with an occlusal top and either filled in solid with solder, or else partially filled with solder leaving a hollow. Both of these inlays



## ITEMS OF INTEREST

have this limitation, that they can not be made for any cavity unless a matrix can be made for that cavity. That is an exceedingly important point, and one perhaps that has not occurred to some. Those of you who saw the specimens passed around this morning by Dr. Taggart may have noticed the step system (I might almost say the lock-step system) of cavity preparation in those which were not cemented, and in those which were cemented the many square-ended extensions away from the main mass of gold into the more destructible portions of the teeth, areas which are liable to attack by caries. Some of you may have observed that those inlays, although not cemented in, were so firmly fixed in their position by the cavity shape, that they supported the handle-like protuberance, left on them from the casting, and that pressure on that handle does not unseat the inlay. That is due to the fact that the extension into those regions subject to attacks of caries are all made with flat angular floors, all made with square-ended carborundum wheels, or else squared after they are burred. Those almost parallel sides, and the angles in the floors of these square seats, prevent all kind of motion but one, and that is in the one direction by which it will never be forced out through mastication—the direct withdrawal of it. A matrix could not be made for that style of cavity, and yet that style of cavity affords you an inlay, when made in solid metal, which can be cemented to place without any alteration of that portion of the inlay which comes into contact with the cavity, so that you need do no undercutting of the inlay; all you need to do is to cement it in place, and then this system of steps locks it. So that at last there has been devised a system of placing a whole filling into the cavity and yet having it so locked that during normal use, it is impossible to unseat or remove it after being cemented.

I do not think we should allow this occasion  
**Dr. Herbert S. Sutphen,** to pass without further commendation of the most  
**Newark, N. J.** excellent paper and clinic presented by Dr. Taggart.

Necessarily in these meetings a great deal of theory and of scientific work is presented to us; we must peruse these and study them carefully; but when we come down to the business end it is the practical thing in our profession that we must depend upon for our success. In my professional experience I can recall nothing which has impressed me so favorably as the method Dr. Taggart has presented to us to-day. It is a distinct advance in dental operations, and I can not too highly endorse what Dr. Taggart has so skilfully worked out for us.

I have made gold inlays for a great many years; I know of one that is in the mouth to-day which I did at least fifteen years ago; of course, it



## SOCIETY DISCUSSIONS

is totally different from those we make to-day; it was a hollow gold inlay, and is still doing good service. I did not call it an inlay at that time; I really did not know it was an inlay; but a case presented where I did not wish to put on a gold crown, and I can not tell to-day whether I thought it out or had read of it, but I inserted a hollow inlay in that tooth.

I feel that when I am able to obtain Dr. Taggart's machine I will have greater facility for making gold inlays. I am very proud of the fact that the New Jersey State Society is the first body that has had the advantage of having this perfected instrument presented to it.

In closing I desire personally to thank Dr. Taggart for the good I have received from his paper and from his clinic. (Applause.)

I do not feel competent to discuss this paper.  
**Dr. B. F. Luckey,** I do not know enough about inlays to take exception  
**Paterson, N. J.** to anything that has been said.

However, whether the principles underlying this work are such as to assure skilful and permanent work I do not know. I am old-fashioned enough to feel that the work which has been done and which stands to-day as a monument to the skill of the able men who have practiced these many years, is good enough to support us all in our practice until we are assured by time and experience that this new and beautiful work should supplant that which we have done and our predecessors have been doing so long. It reminds me of the beautiful illustrations that we see in our journals of difficult operations—they seem so simple; so, too, when we watch an expert billiardist, it seems so easy to play billiards as well as he does. But when we attempt in orthodontia, for instance, to follow out these clever illustrations we find that practically, in the mouth, it is very much more difficult to accomplish than it appeared to be as we studied the illustrations, and I have no hesitation in saying that those of us who attempt to prepare cavities in the mouth with the same precision and perfection that the models which were passed around this morning show, will find that we wish we had not begun, and will probably resort to undercutting, and the old-fashioned filling, in many instances. Those of you who are supplied by nature, by education and experience with that deftness of finger and that mental ability which must necessarily be coupled with it, to perform these complicated operations, if you are also endowed with perseverance, may go on and accomplish something like the results that Dr. Taggart has himself achieved.

I have in my pocket a tooth that I filled with gold twenty-seven years ago, and extracted three or four weeks ago, filled under the influence and teaching of our revered old friend, Dr. William H. Atkinson—



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cohesive coil and proper condensation. After twenty-seven years of hard daily use and being carried for three weeks among the keys and other things in my pocket, it hardly shows a mark; the margins are perfect, and I defy anyone to produce an inlay with as perfect a margin as that filling has to-day; it is absolutely impervious, and shows no signs of decay. We do not know whether these inlays will stand the strain and stress of years. They may last; I can not say they will not; but I am prepared to say as to this tooth which has stood the strain for twenty-seven years, that I see no reason why it should not stand the strain for one hundred and twenty-seven years more, if the patient lived that long.

That we have entered into a new era in the salvation of human teeth I think no man will deny. That we have advanced marvelously in the last few years in the construction and insertion of inlays no one will controvert. Whether this work will become popular depends on the skill in the preparation of the cavity, in the saving of time and in the durability of the inlay after its insertion.

Dr. Ottolengui's remarks are always good (not because he sided with me), for he has had enough experience in the last fifteen years and since the development of the inlay to justify his assertion that the principle of filling teeth by the inlay process is correct. If the old and crude methods of making inlays under this same principle have been the means of saving very bad teeth, I do not think we need wait another twenty-seven years to be persuaded that a new, perfectly adapted, perfectly contoured and perfectly occluded filling is a success.

Dr. Luckey shows us a tooth that was filled twenty-seven years ago. Possibly there are some of Dr. Luckey's patients, as I know there have been patients of mine, who have not kept gold fillings in their teeth twenty-seven months after they were put in. (Applause.)

I saw a filling not long ago which was made in this way: When the man was a boy he was chewing some lead shot in his mouth; one got into the cavity; he tried to get it out and could not, and the harder he bit the tighter it was fastened in. That was fifty-two years ago, and the filling still remains, with the tooth in perfect condition.

Excuse me a moment, Dr. Taggart (handing Dr. Taggart the twenty-seven-year old gold filled tooth), could a shot be bitten into such a cavity?

Well, I hardly think so.

But I have seen fillings put in by the old and cruder methods of making inlays, which have been in



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as long as ten or fifteen years. In this twenty-seven-year old tooth there was no danger of a recurrence of caries so long as the tooth was properly filled; but take a tooth of low grade, where the patient is high strung and nervous, and the teeth decay rapidly; you can fill them with inlays and save them better than any man living can with foil fillings.

Dr. Luckey quotes Dr. Atkinson; I knew him well, and for many years, and I am sure he would be the first one to-day, if he saw this process, to mount to the house tops and yell for it. He was a progressive man, and one who felt that you need not wait a lifetime to know that a certain process, which is a step in advance, is going to be good.

The average gold inlay that has been made heretofore is only an imaginary fit made with cement and when the time comes for that cement to dissolve and wear out, whatever the width of that line is, is liable to decay out. In these fillings the margins are extended into immune territory, beyond the approximal surfaces; the line is carried far enough so that recurrence of decay does not take place.

I have been putting in gold and porcelain inlays ever since the principle was first spoken of, and I have yet to see the first inlay showing recurrence of decay. I have seen them come out, and have known them to be knocked out because of faulty construction or faulty anchorage, but I have never seen a recurrence of decay. If that is not a good test, I would like to know what would be. I have in the meantime, however, seen hundreds and hundreds of great massive gold fillings with a deep blue line around them, and giving the patient a great deal of trouble; yet the gold filling is in; but we know the whole internal structure of that tooth is decaying. You will never get that condition with an inlay; the joint is hermetically sealed, and it will not go deeper than the line of cement.

I do not think it is worth while to talk any further upon these lines, because it would be hard to convince the average dentist of to-day that the principle of inlay work is not correct.

I thank you very much for the very kind words you have said and the attention you have given me. (Loud applause.)

On motion a vote of thanks was unanimously extended to Dr. Taggart for his address and his clinic.





## **Second District Dental Society, March Meeting.**

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The meeting was called to order by the president, Dr. Charles F. Ash. The first order of business was the reading of the minutes of the last meeting.

The names of Dr. H. J. Goslee and Dr. W. H. Taggart were proposed as honorary members, and unanimous consent was obtained for their immediate election.

Dr. Ferris then read a paper entitled "Necessity of Retention of the Temporary Teeth with Special Reference to Their Root-canal Filling."

### **Discussion of Dr. Ferris's Paper.**

I thank you very much for the honor of being  
**Dr. J. Lowe Young.** called on to open this discussion, and, first, I wish to emphasize a few points that Dr. Ferris has brought out about the filling and preservation of the deciduous teeth. If they must be lost, as he has said, we should maintain the spaces by means of some mechanical appliance, because it means a great deal. He also advises what I consider very important, that we fill these teeth with some material that will not waste away and allow them to crowd together, because they are sure to crowd together and not allow room for the permanent bicuspid. For that reason I believe that gutta-percha in many cases is the very best for cavities in the deciduous teeth, because we not only maintain the spaces in that way, but induce an interstitial growth. It is a fact that we do not need interstitial growth in the molar region, as we do in the incisive, but it does no harm to have it. In one place the essayist speaks of the eruption of the deciduous teeth.

He says: "Nature in its plan causes the anterior teeth to develop first, and the eruption of the posterior teeth in the arch, receiving the greatest resistance in the densest structure distally, are thrust outward and forward; and after eruption produce a forward pressure on an already formed continuous arch."

I take that to mean the deciduous teeth. My own observation would go to prove that a child's incisor teeth erupt first, I believe, but they vary, whether it is the upper or lower. Sometimes we get an upper lateral, and then a bicuspid, and then the first deciduous cuspid, and then the second deciduous molar. I do not know whether that is what the doctor wishes to convey there or not.



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Speaking of the eruption of the teeth, he said: "The cuspid comes last"; he goes on to say, "the latter tooth erupting last and crowding its way to assume the position of a keystone." I went over my models this afternoon, and I found eighteen sets where I could be sure of the relation in which the permanent cuspids erupted, and I found them as follows: The lower cuspid erupting before the first bicuspid, 13; the upper cuspid after the first bicuspid, 12; the upper and lower cuspid before the bicuspid, 1; the upper and lower cuspid after the first bicuspid, 4.

I believe that the lower cuspid very often, in a great percentage of cases, erupts before the first bicuspid, but that the upper cuspid erupts after the first bicuspid.

(Dr. Young, continuing the discussion, showed a number of lantern slides.)

I do not think that the object of this paper was really to go into any orthodontic discussion, but rather to incite a discussion of the work of the dentist in the mouth, and in addition to the thoughts that have been brought out by the author, I want to call especial attention to one point in relation to the preservation of the temporary teeth.

The author seems more especially to address himself to the preservation of the teeth which are likely to be lost by caries, and has pointed out the troubles that are likely to follow by lack of interstitial spacing in the temporary set.

Now I will point out one trouble that almost invariably occurs when that condition is present, and where the dentist nearly always makes a mistake in his treatment.

Dr. Ferris showed a picture of a jaw where the lower incisor (Fig. 7) was rotated. It has been common practice to remove the temporary tooth instead of making room for this twisted incisor. I think it is more commonly done in the lower jaw, but it is also done in the upper jaw. What is the result? You may make room temporarily for the four lower incisors, or possibly the four upper incisors, but by removing these temporary teeth too early, instead of having the jaw widened and the temporary cuspids retained, the result is that you practically crowd out the permanent cuspids when they arrive.

Dr. Ottolengui has hit the object of my paper. The idea was to bring out some facts for application by the general practitioner, as I am trying to apply them in general practice.



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I have recently had an enlightenment through Dr. Edward H. Angle, and I felt that this particular point was of most value to the general practitioner, therefore that is what induced me to write upon this subject.

For root filling I take a piece of Johnson & Johnson's sterile catgut of the size of the root canal, after determining the length of the canal in the usual way. Introduce that into a spring holder and dip it into the mixture, carrying it into the pulp chamber and with a pumping motion force the material through the sinus; then a ball of oxyphosphate cement is mixed stiff and forced into the pulp chamber.

**Dr. Le Roy.**

Is this material readily absorbed?

**Dr. Ferris.**

I believe that it is, but the eradication of the abscess I would consider vital; I do not tolerate the existence of a sinus in my practice, as one drop of pus in an ounce of saliva would change its chemical reaction from slightly alkaline to a decided acid. I thank you very much for your attention.

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### Second District Dental Society.

#### October Meeting.

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A meeting of the Second District Dental Society was held at the King's County Medical Building, October 14, 1907.

President Hutchinson called the meeting to order. On motion of Dr. Gould the regular order of business was suspended and Dr. Gough presented his patient in orthodontia to the meeting. Upon the meeting being called to order a vote of thanks was unanimously extended to Dr. Gough's patient.

The minutes of the last regular meeting were then read and approved. The minutes of the special meeting held in May were read and approved.

The president, Dr. Hutchinson, then called Vice-President Frazer to the chair, and presented his annual address.





## **President's Address.**

By R. G. HUTCHINSON, JR., D.D.S.

### *Fellow Members of the Second District Dental Society:*

In the past our society has devoted its efforts mainly to the advancement of dentistry through the reading and discussion of papers. This, of course, is of the utmost importance, but the time has come when we must not stop at that point, but must make our influence felt outside the ranks of our profession.

For this reason I shall present briefly, for your consideration, a few topics which are of interest and importance to us as a profession. While I shall deal with several topics, all may properly be classed under the heading "Dental Education."

To begin with, the general objects of all dental societies are the advancement of the science, the promotion of the interests and the education of the members of our profession.

Much has been said concerning the standing of the dental profession as related to that of medicine. Many claim that we should be recognized as on a par with the medical profession, but, gentlemen, it is hard to obtain such recognition for our profession as a whole, when so many practice it more as a trade than as a profession. Much of our work is purely mechanical in its nature, and as such offers excellent opportunity for unprincipled men to do work that is profitable to them, but which bears no more relation to the treatment of pathological conditions than does the adjustment of artificial eyes or limbs.

Those who by their practice justify the title "Doctor of Dental Surgery" will surely receive the merited recognition, both from the medical profession and the laity

Cases have come repeatedly to my attention in which dentists have placed pieces of bridge work in mouths so badly diseased that the conditions were made infinitely worse by their presence, no effort having been made to restore healthy conditions to either the gums or teeth.

Let us all be honest with ourselves and with our patients, and endeavor to educate them to appreciate disinterested effort on our part to serve their interests and welfare.

Apropos of this let me quote from our Code of Ethics: "Article IV—'The Mutual Duties of the Profession and the Public.'—Dentists are frequently witnesses, and at the same time the best judges, of the impositions perpetrated by quacks, and it is their duty to enlighten and warn the public in regard to them. For this and many other benefits conferred



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by the competent and honorable dentists, the profession is entitled to the confidence and respect of the public, who should always discriminate in favor of the true man of science and integrity, and against the empiric and impostor. The public has no right to tax the time and talents of the profession in examinations, prescriptions, or in any way, without proper remuneration."

### **Education of the Public.**

In many of our states and also in foreign countries considerable progress has been made toward the education of the public through lectures, examination of school children and clinical work. Several years ago a committee from our State society made examination of five hundred and fifty-nine children in two of the public schools of Brooklyn. The work was not continued in this borough, but has recently been taken up in Manhattan.

As Manhattan, which is the First District, and the other boroughs, which constitute a part of the Second District, all come under the jurisdiction of the Department of Education of the City of New York, it seems fitting that some concerted action should be taken looking toward co-operation in this most worthy enterprise. To that end I recommend that a committee be appointed to confer with the First District Society to formulate a plan whereby our profession shall officially indorse and aid in the movement for public education on dental subjects.

During the summer I issued a letter to the members of this society, calling their attention to the organization of an association for the education of the public which was being promoted by a commercial corporation.

We must be careful not to allow ourselves to be drawn into such schemes, which while they profess to be disinterested and purely philanthropic, are unquestionably intended to promote commercial interests. If, however, we refuse to participate in such organizations it becomes our duty to take up such work and carry it on in a strictly ethical manner. I see no reason why we should be called upon to furnish professional services gratis, but I believe that we should do something to show our attitude toward the movement. We can at least pass resolutions calling the attention of the Board of Education to the fact that the physical and mental welfare of school children depend largely on a healthy condition of the oral cavity, and urging the establishing, at the expense of the department, of a series of lectures on the subject of oral hygiene.

Also that it is as important to have examinations made by a competent corps of dentists as to have medical examinations. Such a communication would undoubtedly have weight coming from the official representatives of our profession.



## SOCIETY DISCUSSIONS

The Medical Society of the County of Kings is now giving lectures on subjects of interest to the general public, under the auspices of the Brooklyn Institute of Arts and Sciences. Surely it would be to the credit of the Second District Dental Society to be identified with such a movement.

**Public Health**  
**Defense League.** Last year the attention of our society was called to an organization whose national headquarters are in New York. I refer to the Public Health Defense League. Its objects are:

- "1. To combat all forms of quackery and charlatanism.
- "2. To prevent food adulteration and drug substitution.
- "3. To prevent the sale of narcotics and alcohol disguised as patent medicines.
- "4. To prevent the circulation of indecent medical advertisements.
- "5. To advocate the establishment of a national health bureau.
- "6. To carry on an educational campaign for the spreading of accurate knowledge concerning the public health and the inculcating of higher health ideals.
- "7. To protect the public health by assisting the constituted authorities in the enforcement of existing law and by urging the enactment of uniform legislation in all the states on matters relating thereto.
- "8. To co-operate with other societies interested in any public health problem, and ultimately to effect a plan of union or co-operation of all organizations interested in the public health."

The League is composed of eminent citizens of all vocations, and is supported by leading scientific, educational and philanthropic organizations throughout this country. There is every assurance that by January first the membership will reach five thousand.

In a letter which I received recently from the assistant secretary he says: "I beg to assure you that any action your society may take in the way of indorsing the League in its work will be most heartily appreciated by us. I have myself spent the last three months in the work of organizing the Illinois State Branch of the League, and there the dentists co-operated with us and helped us materially in the work of extension. Last week one of our representatives addressed the Odontographic Society with the result that a very large number came over to the League as members. A committee was appointed to co-operate with the League, and formal resolutions were passed indorsing our work.

"If there is any information upon any special point you desire and you will let me know I shall be glad to assist you in any way that I can."



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So far we have been able to accomplish comparatively little in the way of suppressing quackery and charlatanism, and if by co-operation with this League we can bring about the enactment and enforcement of laws which will deal with such evils, it behooves us to do so. Our State Law Committee has more than enough to do in prosecuting illegal practitioners. Not only is it too much to ask the dental societies to do this kind of work alone, but as the general public is the greatest beneficiary it seems only proper that an organization representing all good citizens should do a considerable share of such work.

For several years we have omitted the reading of papers at our December meeting, and I recommend that we arrange to take up the consideration of this subject at that meeting, and have a representative of the League present to furnish information as desired. There is no time for business of that character at our meetings when papers are read and discussed and such matters are too important for us to pass them by entirely.

While the Second District Society represents  
**Second District** officially ten counties of this State, we have in reality  
**Auxiliary.** only a very small representation outside of Long Island.

Recently the old Second Judicial District has been subdivided, the five counties north of Manhattan having been made into what is now called the Ninth District. This does not apply to our State society divisions, and for a number of reasons it seems inexpedient that a new district society should be formed.

It is and always has been hard to induce members of our profession in these upper counties to join our society on account of the difficulty experienced in attending our meetings here. If these men could organize an auxiliary society, and hold their own meetings nearer home, at the same time being members of this society, I believe many could be prevailed upon to become members, so adding materially to the influence and welfare of the general organization.

I therefore recommend that a committee be appointed to confer with the proper officials of the State society in regard to perfecting such an organization.

In closing it is fitting that mention should be  
**In Memoriam.** made of those who have been taken from our midst since our last regular meeting.

Never before in the history of our profession have so many men of prominence in this locality been lost from our ranks in so short a time.

Our own beloved Dr. Brewster was the first, his death having occurred soon after our annual meeting in April. At a special meeting in



## SOCIETY DISCUSSIONS

May suitable resolutions were adopted, as you will have noted in the minutes of that meeting. It is almost entirely due to the devoted and untiring efforts of Dr. Brewster that our library is at present in such good condition.

The others who have left us, Drs. Littig, Hart, Miller, Goldsmith, and Eugene Palmer, were all members of New York societies, and were well known and most highly esteemed by all of us.

We will all miss the genial presence of these departed brothers, most of whom were very frequently with us and whose words were listened to with pleasure and profit.

May their lives be to us an inspiration to do the best of which we are capable in our profession.

On motion the president's address was referred to a committee of three to be hereafter appointed, to report at the November meeting. President Hutchinson then resumed the chair.

Dr. Charles A. Meeker, of Newark, N. J., then presented a paper entitled "Some Random Society Experiences."

### Discussion of Dr. Meeker's Paper.

**Dr. W. W. Walker,**      The very pleasant duty I have to perform to-night is to congratulate the society on the selection  
**New York.**              you have made for your president, Dr. Hutchinson.

I have known the doctor for a great many years; I knew him when he was a student in the New York College of Dentistry, and I knew him on that afternoon when, having passed through the ordeal of the dental graduate, he came home and announced to his fond mother and father that he had passed, away up in his class. That was a great day in the Hutchinson family. They thought that he was the best of them all, and I felt sure that if he only had a half a chance to get up to the top of the ladder, he would do so. And so he has; for he is not the coming man, he has already come, has reached the top, and I know that he will prove an honor to this society.

As to the paper I am to discuss to-night, the essayist has really left nothing to discuss. There is no man who is so pre-eminently fitted to manage the executive work in a dental organization as Dr. Meeker, and he told you to-night that he has been at it ever since his boyhood days—nobody knows how long that is (laughter). At the last meeting of the New Jersey Society one feature was absolutely a dead failure. I felt sorry for my dear old friend, President Brinkman, when he almost had



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to go around with a bell to get the members of the society into the hall. It is a mistake to have the exhibits and clinics in the same hall as the meeting. The two must necessarily be divorced.

I went down to the dental meeting at Jamestown and I never saw such a meeting. The clinics were all right, but they had only a little screen thrown between them and the meeting place; all the exhibits were open, and there were very few to listen to the paper. The star paper on that occasion was by my friend Dr. Van Woert, of this society, and it really outdid the other attractions for a little while, but even with all his brilliancy he could not hold the attendance of the members, because they wanted to go around and look at the exhibits. There is where the New Jersey Society and all the other societies make a mistake; if they want to interest the profession in the clinics, and the exhibits, and the essays, then these must be separated. The First District Dental Society has its clinics in the morning and afternoons on the east side and the meeting and the reading of the papers at another place in the evening, and that is a great improvement over the Jersey meeting. However, if Dr. Meeker and the committee could have their own way about it, I have no doubt this could be remedied, and I doubt whether it is a matter that can be avoided.

I do not know whether the dinner which they have at the C. D. A. meetings is an advantage or not; I know the boys gather there about six o'clock, and by the time the dinner is finished a good many of them couldn't discuss any subject (laughter). But I have no fault to find, I have been there myself, and have enjoyed it. Meeker says the way to get at a man's heart is through his stomach; that may be all right, but at a dental meeting if you want to get real theory and practice from the members you don't want to give them so much to eat and drink.

Speaking about politics, you never in this world can keep politics out of any kind of an organization. From the time Meeker went into office, as he says himself, a kid just out of his school days, he has been in politics; but a little politics in a dental or any other kind of an organization is a good thing, especially when they develop opposition, for opposition sometimes gets the old members back into business, for they say: "Here is where we have to attend to things or else get out," and they get to work.

In Chicago there were so many local societies that not one of them was attended as it should be, and Dr. Crouse, or some other wise man, consolidated all the dental societies in Illinois, and now they tell me they have a happy band of members; all the local societies being united and the State society being one of the largest dental organizations in the



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world, and I am very glad to know it. I do not think that could happen in New York City—it might in Brooklyn!—for in New York City there are too many petty jealousies. We have a great many men who, if they can not rule, are bound to ruin. In the Odontological society they had the same trouble. But one man who could not have his own way started another society. He said he would leave the members of the Odontological society who wanted to stay there to do so, but he gave dinners and tried to coax them away just the same. The chances are we have the greatest society in the world barring New Jersey—and this one. We are doing a great scientific work, and we let the disaffected ones go their own way, and it will not be a great while before they will want to come back.

The sweetest of the old Irish poets was Tom Moore, and he wrote a poem called, I think, "The Sweet Bells of Shannon." And he wrote another that went something like this:

"Oft in the stilly night, while the other boys are sleeping,  
You can find Meeker in his little den working up a meeting."  
(Laughter.)

We all know that Meeker is working night and day for the advancement of dentistry; no dental scientist—Heitzman, Boedecker, Miller or any of them—ever did any more work in their line than Meeker has in this particular branch of dentistry, and by it he has elevated the profession immensely, and to Meeker belongs the credit.

I can not go back quite as many years in this  
**Dr. H. S. Sutphen.** work as can the essayist, or our friend Dr. Walker,  
**Newark, N. J.** of New York, but I have had five or six years' experience, and I can say it is certainly very interesting to see the development of ideas as they come from the younger members. The older members do not know it all; they started the work and have brought out a great many good ideas, but these younger men, who, from year to year, come into the society, have done a great deal toward the elevation of the profession.

Of course, I only know about the work in our own State particularly and our local society, but I can see in our own city and in the towns of New Jersey, where our members are, the great good that has come to the dental profession from the work which these members have done in the society, both in the elevation of dentists themselves, in the education of the people and the patients who come to us for our services, as well



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as the good feeling which has been promoted; dentists being brought closer together realize that each individual is not the whole thing and there are other people who know something and can accomplish something.

The social side is very prominent in bringing out that condition of affairs. When dentists merely meet on the street they pass with a nod of the head, and sometimes not even that; but where they get together and have a little something to eat, they get closer together and better acquainted, and they find out the other fellow is just as good as themselves and has qualities to be cultivated, and they ascertain that they are all jolly good fellows together.

Under the old regime a dentist was almost an enemy to his brother. His methods were secret, and the operations in his office and laboratory were absolutely his own; he would never speak of them to others, and would not allow his brethren to come and witness them; entrance to the laboratory of a fellow dentist was almost a thing impossible.

The better we educate the people to the fact that there is good and pure dentistry, the better our income will be; and the more we educate ourselves to a higher class of work the more good shall we be able to accomplish.

Why is it, in a city as large as Brooklyn, that there is such a slight attendance as we have to-night? It is so everywhere. The attendance shows but a very small portion of the membership. Is it because the members do not take the interest they should? Certainly it is not because they do not have interesting papers presented. Instead of this room holding the attendance, there ought not to be a room large enough in this building, even though the people stood up, in view of the character of the papers that have been presented before this society. There is something wrong with the dental profession; evidently they do not care to be educated, and something ought to be done to increase their interest in this work.

I came here to-night expecting to hear something about experiences in dental meetings and hoped that reference would be made to such occasions other than in New Jersey, but since the paper has referred so much to the meetings in that State I desire to add a few words to what has been said so well by Dr. Walker in commendation of Dr. Meeker's essay.

Some of the younger men will have to read the paper very carefully, and go back into what is really ancient history, to understand the



## SOCIETY DISCUSSIONS

condition of affairs that existed in New Jersey when he first became secretary of the society there, and the work that has been done since that time.

In any dental organization there must be some few men, and very frequently it is only one man, who will do the routine work necessary to carry the society toward success, and there is no question whatever in the minds of those who know the history of the New Jersey State Society, as well as the C. D. A., that Dr. Charles A. Meeker is the man who has done the work that led to their success. Whether it has always been done according to your idea or mine is not the question; he has won success for both societies, and it is the result that appeals to us.

For a great many years during the early history of the C. D. A. its meetings were held from house to house and often there would be no collation, or if there was it would consist of crackers and cheese with possibly a bottle of beer, but in those days the society ran down a good deal, and the question of a banquet was discussed, and it was decided to hold one before each meeting; ever since then the society has grown, until it has become what it is to-day. I most heartily agree with Dr. Meeker's ideas in that respect, that the social side should always be catered to, for after meeting around the table members will feel far more friendly than when simply meeting in the society hall.

I have been wondering ever since I listened to  
**Dr. Benj. F. Luckey,** the paper of Dr. Meeker just exactly what its ob-  
**Paterson, N. J.** ject is, for it took a turn somewhat different from  
what I anticipated, and just what interest the rise  
of the New Jersey Society could be to the Second District Society I  
could not see.

I have not attended these meetings as much as I should like, and I do not know the extent of your success, but that Dr. Meeker has pointed the way to success there is no question. In all my experience I have never met a man with the executive ability along the line of organization work such as is possessed by Dr. Meeker. I have known him a great many years. Whether he is a good or poor dentist I do not know—I presume a good one—but that he is a good organizer and director, I, and most people in this room, do know. The points brought out by him to-night are admirable and are born of his own experience. One of the strongest points is that of publicity. The public press is more powerful than the pulpit or the philosophers of old; nothing will more quickly make or break any man or organization than the public press. Generally speaking, a man's success is assured provided he has the ability to produce, in the ordinary parlance of the day, "the goods." A man who



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opens his office on a side street, puts out a modest little sign, or none at all, and depends upon his professional skill and the influence of his personal friends for success may arrive some day; more often he never does arrive. The man who has the courage to place his sign in a place where it is seen of all men, who can bring to his support the help of a good press agent, who has judgment as well as skill in the use of his hands, will arrive much sooner—and you all know it. You know the men who get to the top are the men who do not sit on the back seats and keep quiet, but men who put their claims forward, who not only have ability and skill, but who are not troubled with too much modesty as well.

Every young man has a right, however, to hope some day to occupy the place of an Atkinson, a Dwinelle, of a Miller, or of any other of the men whose names we hold so high, and never one of those men was elevated by the efforts of his friends, but by his own energy and ability. Whether or not this is along the line of the paper of the evening I hardly know, but it is the trend my thoughts take now, and may perhaps supplement that which the essayist has been presenting to you. I have enjoyed being with you to-night, and while it takes a long time to get from my home to the meeting I feel that I have been wholly repaid and hope that my visits may in the future be not so infrequent as they have been in the past.

As I listened to the paper to-night—which, of course, was a very brainy paper, because, as you all know, it was written by the ablest man in that line in the dental profession—I was impressed with the fact that the title of the paper and the paper itself do not agree. It seemed as though we were living in the atmosphere of the past and not of the future, and yet I know the essayist's thought is to give us something to spur us on to a successful future, and I shall speak for a few minutes, with your kind permission, of my personal experience in dental meetings.

It was my fortunate lot to enter the dental profession just about the time when dental meetings came in vogue, and I have found these meetings a very liberal education. It is not necessary to go to Europe, to Stockholm, to Paris, or to London to secure a liberal education in our profession; we can do that by attending the dental meetings and having our views broadened. That is my own personal experience. When I first graduated I thought I was "it," but by attending dental meetings I found that there were a number of men who thought the same thing about themselves, and when we came to exchange experiences I found that there were many who knew more than I did.



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Then I found, too, that from no school or faculty did I acquire the knowledge that I could gain through my acquaintance with those whom I met in dental meetings; through chatting with them, listening to their papers and looking at their clinics, and I have come to the conclusion that there is no man so humble, so unpretentious or so confined in his environments who does not have some information that I want and which he alone can give me. There is not a single student in my classes who can not tell me something that I do not know, some helpful suggestion to help me in my practice and make me a broader man and assist in a more liberal education.

That is what dental societies have done for me.

Besides that they have brought us all into close contact with the greatest minds in the dental profession and in close communion with our fellow-men as nothing else would do. There is not a young man in our profession to-day who can afford to miss a single meeting of his society, and so I say, God bless the man who organized our dental societies and made the dental profession what it is to-day.

Dr. Sanger spoke of the necessity of inter-  
**Dr. F. C. Van Woert.** course with one another in the dental profession.

That has been my experience, and I have always made it a point to never turn my back on the lowliest of those I met, and you know that in the former days I did a great deal of traveling. Some twenty years ago I read a paper before the Vermont Society at Montpelier, Vermont, and at its close I met a number of the members who wanted me to call upon them, and all that sort of thing, and one of them, a typical farmer dentist, asked me to call on him. I do not know what it was possessed me to do so, but I did, and I learned from him a very valuable thing, for I found that the cord on his dental engine apparently had no joint. I asked him where he got it. He said, "You fellows in the city can go to dental depots and get a new belt when yours wears out or breaks, but we can't; we have to improvise something when we get into trouble. I broke the belt on my engine several times, and it got so short I could not repair it and did not know what to do, so finally I found a good extra long corset string of my wife's and made up my mind that that would make a very good belt, and I sewed it together. It did not work quite right, and I devised a scheme of fixing it so that when you pulled it, it tightened up and made practically a jointless belt."

That repaid me for the trip, for I came home and told of it, and Johnson Bros. began making their belt in that way from that time.

So we can profit from our dental meetings, it makes no difference who the individual is who makes a suggestion or how little regard you



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may have for the subject he is presenting, and it behooves every man to pay attention, that he may profit as I did.

There is one point in the essay that I would particularly emphasize, and that is the notifying of the press of our meetings and of what the society does. **Dr. Chas. Hyatt.** I know very well through my experience with the members of this society collectively, and with the members individually, that any suggestion of public education usually meets with a very cool reception.

Some years ago, when Dr. Turner was our president, I advocated at a meeting of this society the taking of some steps looking toward lectures to be given to the public, and Dr. Turner looked at me with a great deal of pity when my motion was not even seconded. Now dentists are beginning to catch up with the times, but formerly the dental profession, while in advance in many ways, was twenty years behind the times in regard to being in touch with the public. The Brooklyn Institute of Arts and Sciences, in conjunction with the Kings County Medical Society, is giving a course of lectures in this very building, and the medical profession for twenty or thirty years past has been giving a series of lectures to the people so that there is not one man in a hundred thousand but recognizes what the medical profession stands for. But when I first entered dentistry I never met a patient who knew anything about the profession, yet only to-day a patient spoke to me about a new kind of cement that was being used, and it seems to me the people are awake. Many of you know that I am on the regular staff of the Board of Education, and I have been giving lectures in the public schools and meeting five or six hundred people at every lecture, and they ask me questions, yet they do not even know that there is such a thing as a dental society. Then, too, people come and ask me to advertise, and I tell them I can not because I am a professional man, and they ask me whether the men who do advertise are not professional men, and I am thus able to explain the matter to them.

I am very glad that Dr. Meeker has advocated such a radical change from the old—what I call—"sleepy days." The wideawake world is out for learning and desires information to-day, and we should all give the subject as much publicity as possible.

I had hoped there would be more criticism than **Dr. Chas. A. Meeker.** there has been, but you all seem to agree with me!

What I regard as the most important part of my paper, and that which was discussed by Dr. Hyatt, did not originate with New Jersey, however, but wherever any remarkable case of surgery or



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medicine occurs it invariably gets into the public press, and the medical profession gets the advantage of it, and thoroughly ethical men are thereby advertised, and so it should be with the dental profession.

I said our income is mainly derived from men who have to work for their living, and those are the men who, while they have not time for reading fiction or scientific work, read their newspaper, and if our doings are reported in the public press those are the people who will be educated, and they form by far the greater part of the public. Furthermore, by this means the people are enabled to distinguish between the ethical and the unethical dentist.

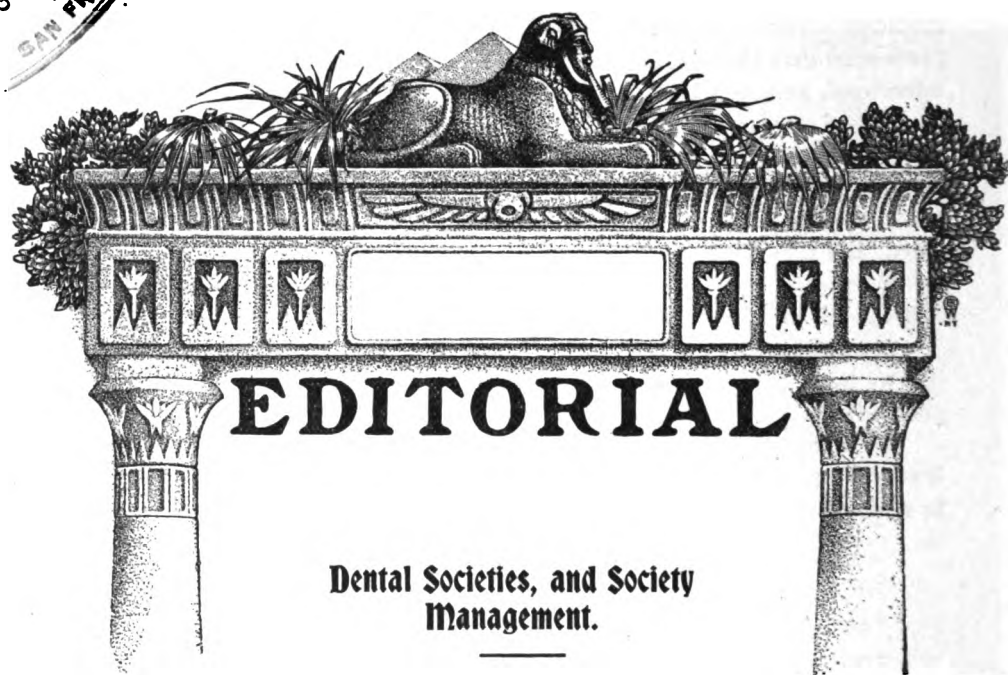
Dr. Walker's criticism of our Jersey meetings is doubtless justified, but we hope some day to be able to separate the clinics from the society's proceedings.

My purpose in presenting this essay has, I think, been accomplished; it was to show what one State society has done in order to illustrate how to make a successful dental society. (Loud applause.)





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# EDITORIAL

## Dental Societies, and Society Management.

What is a dental society, and what is the primary object of all such associations? A dental society is not merely an organization with a membership limited to dental practitioners, for conceivably a golf club might have similar limitations. A dental society is always an association of graduate practitioners avowedly in search of post-graduate knowledge, and by combined effort aiming toward the advancement of dental science and art. Bearing this definition in mind, it is ever possible to test the success or failure of any specified dental society, for just in proportion as it adds to the sum of dental knowledge, and distributes the same for the benefit of the profession, a society is a success; contrarily, in so far as it fails to do this it is a failure.

### Local, State and National Societies.

In the United States we have local, state and national bodies. The local society fulfills its mission if it furnishes its own membership with information regarding the new things in dental science, which may originate beyond the sphere of its own locality. The State society may be measured by the same standard as the local, except that its territory is larger. The national society should attract to





its conventions not only the scholars of this country, but it should draw from the entire world, and its annual program should be a résumé of dental progress for the year.

Dr. Charles Meeker, in a paper read before the Second District Dental Society (published in this issue), gives us a graphic account of his connection with two of the most successful dental organizations in this country, and those engaged in the management of societies elsewhere will profit by reading what Dr. Meeker tells us. Many causes, of course, have contributed to the success of the New Jersey State Dental Society and the Central Dental Society of Northern New Jersey, but the most prominent fact in the history of both bodies is that politics has been kept in abeyance, and the usual scramble for office has been practically unknown in New Jersey. There has rarely been any contest, and the election of officers usually occupies about five minutes' time. The plan has been to keenly observe the younger element, and to invite newcomers to take a part in the active work by filling a place on a committee. If such a man shows any executive ability whatever he is encouraged and advanced, and the presidency of the society is ever held before his eyes as the certain reward of his labors. Year by year he is appointed on more and more important committees, until at last he is made vice-president and then president. This plan accomplishes good in two ways. Every man is encouraged to labor for his society, knowing that work, and not political influence, will gain him the highest honors. Secondly, the president is always one who, having served on all committees, is competent to guard the interests of the society at all points.

**The American  
Society of  
Orthodontists.**

The American Society of Orthodontists is a national society, which has been marvelously successful. Within seven years this little band of co-workers has accomplished more than any other dental organization has achieved in a similar time in the history of our profession. It has not only established a separate specialty in the medical world, but it has given to orthodontia a prestige as a science and an art which it might well have required a quarter of a century to attain. Here again we see a society accomplishing its mission largely because its constitution prevents the ingress of political lobbying, and office seeking. Its method of voting is admirable. At a stated



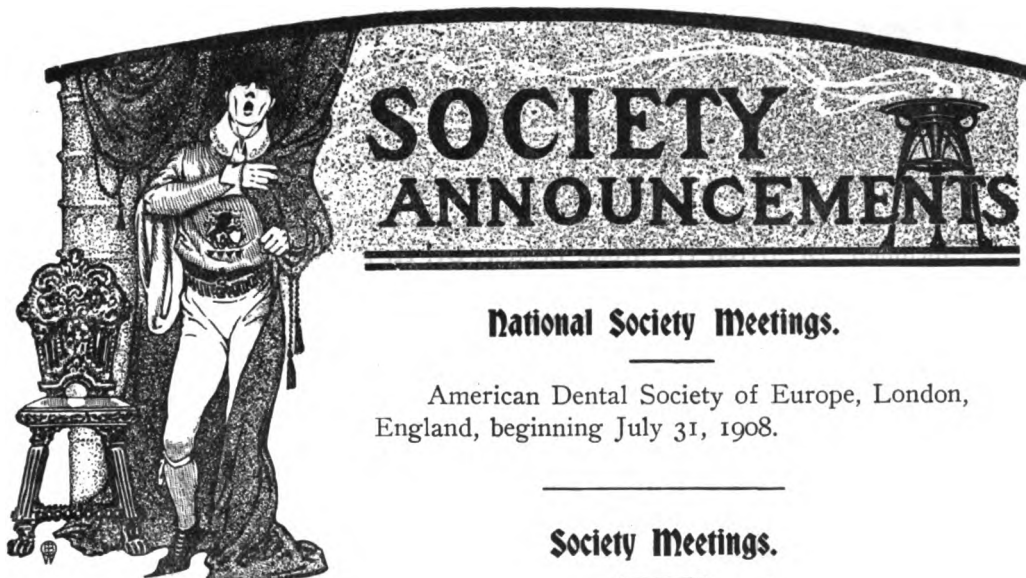
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period prior to an election a ballot is sent to every member by mail, and each forwards a list of names as his choice for various offices. These the secretary examines and then prepares a final printed ballot carrying two names for each elective office, these two having received the highest number of votes in the nominating ballots. Each member sets his mark next to the names of his choice, signs his ballot, and mails it to the secretary, who holds them unopened until the meeting convenes, when the nominating ballots are first examined to make sure that the secretary had made no error, and then the final ballots are canvassed before the board of censors. This secret mail ballot accomplishes two important ends. It absolutely prevents lobbying, and it insures a full vote of the entire paid membership.

Within a year an entirely unique dental society  
**The New York Study Club.** has sprung into existence, and is known as the New York Study Club. This, perhaps is the truly ideal local society because it fully meets the test, in that it brings from afar experts who teach what is done elsewhere. The membership fee in the Study Club is nominal, but a clause in its by-laws provides that five members may elect to take any course of study, and also may choose a teacher. The Clinic Master then undertakes to engage the teacher, and to fill the class, up to twenty or twenty-five. Those composing the class pay a pro rata share of the teacher's fee. The Study Club has already successfully conducted several courses of study, which is in the nature of post-graduate work, and there is no doubt that this style of dental society is destined to play an important part in the professional work of the future, because more than any other it succeeds in adding to the real knowledge and culture of its members, by securing instruction from specialists.

Again we observe that the promoters of this new movement have most carefully drawn the constitution so as to eschew politics. It is therefore evident that the time is fast approaching when we shall see a divorcement between the politicians and the students in dentistry.





### **National Society Meetings.**

American Dental Society of Europe, London, England, beginning July 31, 1908.

### **Society Meetings.**

Alumni Society of the Angle School of Orthodontia, St. Louis, Mo., December 12, 13, 14.

Institute of Dental Pedagogics, New Orleans, La., December 31, January 1, 2.

New Jersey State Board of Registration and Examination in Dentistry, Trenton, N. J., December 9.

New Mexico Board of Dental Examiners, Albuquerque, N. Mex., May 26, 27, 1908.

Ohio State Dental Society, Columbus, Ohio, December 3, 4, 5.

Texas State Board of Dental Examiners, Waco, Texas, December 16.

### **Institute of Dental Pedagogics.**

The fifteenth annual meeting of the National Institute of Dental Pedagogics will convene in the St. Charles Hotel, New Orleans, La., December 31 and January 1 and 2, for which the following program has been prepared by the Executive Committee. All teachers in dental colleges are respectfully requested to attend this meeting:

Program.—1. President's address, Dr. J. H. Kennerly, St. Louis.  
Discussion.—Dr. A. G. Fredericks, New Orleans; Dr. H. E. Friesell,



## ITEMS OF INTEREST

Pittsburg. 2. Report of Commission on Nomenclature, Dr. S. H. Guilford, Philadelphia. Discussion.—Dr. J. D. Patterson, Kansas City; Dr. C. R. Turner, Philadelphia. 3. Recitation Teaching in Orthodontia, Dr. Calvin S. Case, Chicago. Discussion.—Dr. S. H. Guilford, Philadelphia; Dr. B. E. Lischer, St. Louis; Dr. C. R. Jackson, Indianapolis. 4. A Method of Teaching Technical Operative Dentistry, Dr. A. E. Webster, Toronto. Discussion.—Dr. D. M. Cattell, Nashville; Dr. H. T. Smith, Cincinnati; Dr. Byron H. Strout, Boston; Dr. H. M. Semans, Columbus. 5. The Teaching of Prosthetic Dentistry, Dr. Walter M. Bartlett, St. Louis. Discussion.—Dr. R. M. Sanger, East Orange; Dr. Hart J. Goslee, Chicago; Dr. Ellison Hillyer, New York; Dr. H. P. McGruder, New Orleans. 6. Teaching Operative Dentistry and Dental Pathology, Dr. Harry B. Tileston, Louisville. Discussion.—Dr. D. M. Gallie, Chicago; Dr. L. M. Waugh, Buffalo; Dr. S. F. Foster, Atlanta. 7. A Method of Teaching Dental Ceramics, Dr. W. L. Fickus, Pittsburg. Discussion.—Dr. W. M. Randall, Louisville; Dr. C. K. Buell, Buffalo; Dr. W. F. Lawrenz, St. Louis. 8. The Didactic Teaching of Dental Anatomy, Embryology and Histology, Dr. C. D. Lucas, Indianapolis. Discussion.—Dr. William Bebb, Los Angeles; Dr. F. B. Noyes, Chicago; Dr. C. L. Babcock, Milwaukee. 9. Report of master of exhibits, Dr. F. C. Friesell, Pittsburg. 10. Report of master of new teaching facilities, Dr. N. T. Yager, Louisville.

B. E. LISCHER, Secretary and Treasurer.

### Kentucky State Board of Dental Examiners.

The Kentucky State Board of Dental Examiners will meet for the examination of applicants at Louisville, on the first Tuesday in December, 1907, at the Masonic, commencing at 9.00 o'clock A. M.

Each applicant for examination shall be required to deposit with the secretary of the Board his or her recent photograph, with signature on the reverse side, both of which shall be certified to by the dean of his or her graduating college, or other parties acceptable to the Board. Applicants must be graduates of reputable dental colleges.

Application for examination must be made upon blanks furnished by the Board, and must be accompanied by a fee of \$20.00 and the above-mentioned photograph, all of which must be filed with the secretary ten days before the date of examination.

KENTUCKY STATE BOARD OF DENTAL EXAMINERS,

By J. RICHARD WALLACE, Secretary.

The Masonic, Louisville, Ky.



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